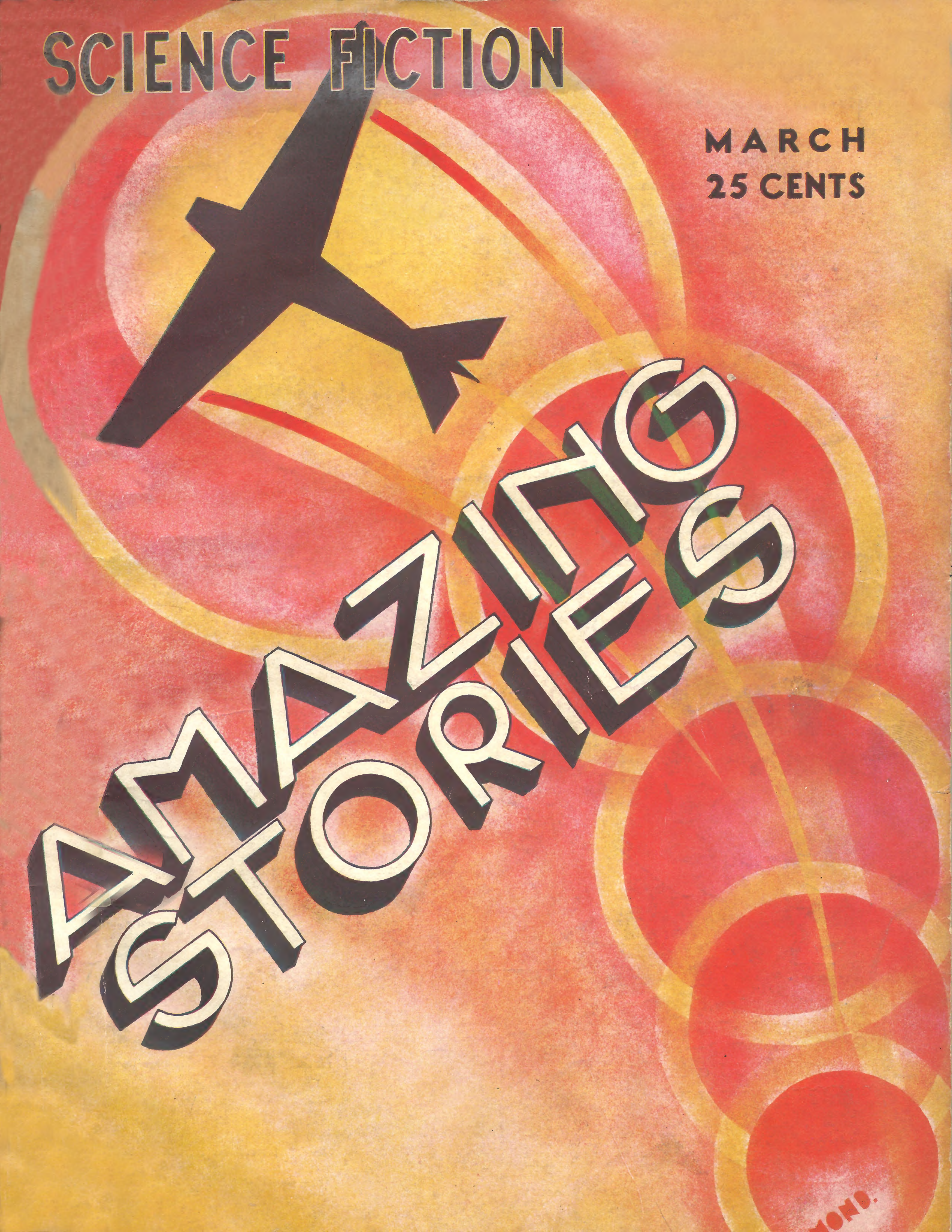
SCIENCE FICTION

MARCH
25 CENTS

AMAZING STORIES



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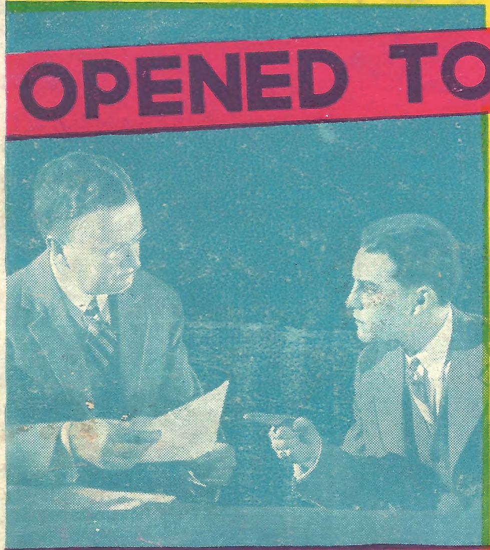

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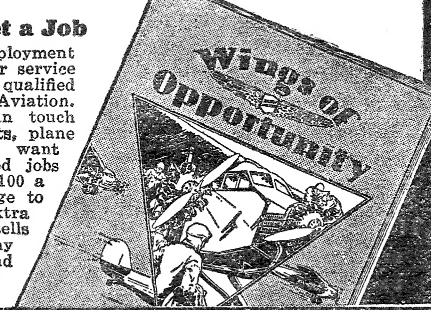

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JULES VERNE'S TOMBSTONE AT AMIENS
PORTRAYING HIS IMMORTALITY

AMAZING STORIES

Scientific Fiction

Vol. 7 March, 1933 No. 12

In Our April Issue

BEYOND THE END OF SPACE, by John W. Campbell, Jr. The second and concluding installment of this story will be given in the April magazine. What it will be our readers can judge from the interesting part printed in this issue. We are sure that it will be welcomed by everybody.

WHEN THE COMET RETURNED, by Harl Vincent. We feel that this narration by Harl Vincent will be highly appreciated by our readers. He is one of their favorite authors and it is a matter of regret to us that he has been crowded out of our recent issues. No one can deal with the interplanetary world and astronomical stories better than he.

THE PHANTOM OF TERROR, by Ed Earl Repp. This tale has been pronounced by an eminent critic, who has read it and reported to us on its merits, as being one of the best stories he has read in a long while. The name of the author should be enough in itself to excite the interest of our readers, but Ed Earl Repp has done unusually well in this effort.

THE MEMORY STREAM, by Warren E. Sanders. This is quite a charming story, taking us back to the time of the Neanderthal man and describing vividly episodes of the cave life of those days.

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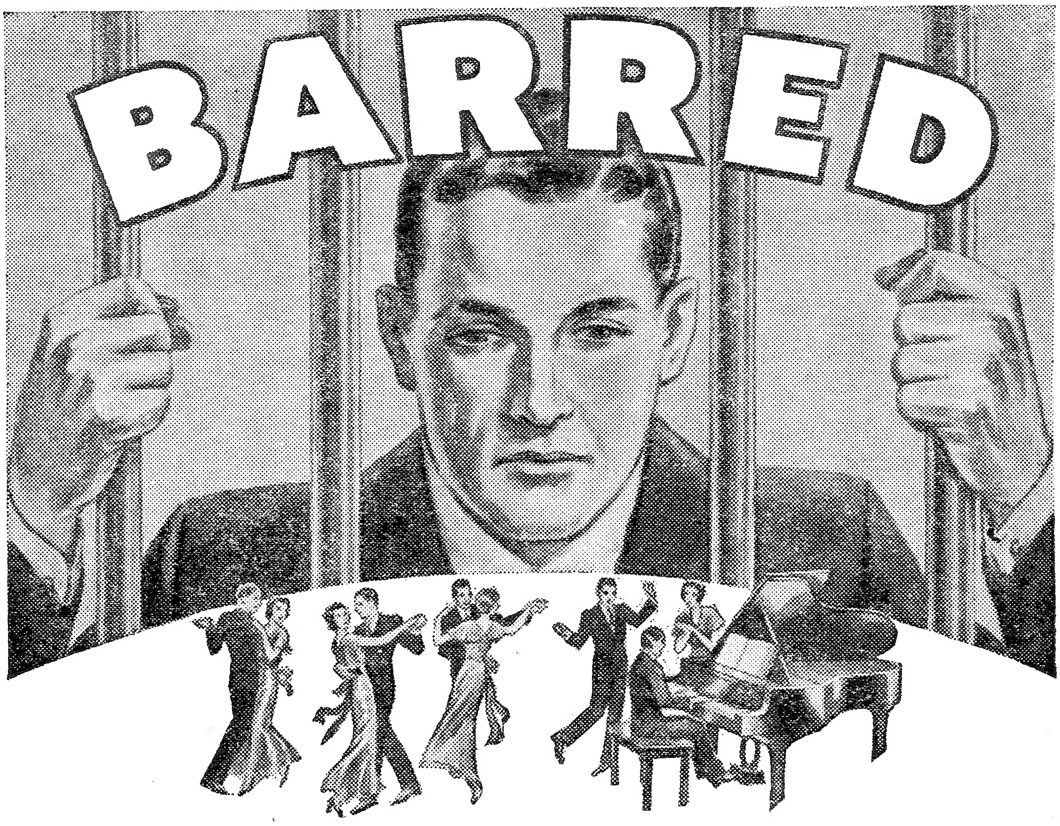

—because he couldn't entertain

ARE you like the man in this picture . . . ruled out, discriminated against, barred from parties and popularity which others enjoy?

Man or woman, you are probably just as attractive, just as interesting, just as clever as any one else. Yet others seem always to capture all the good times while you alone are left out in the cold.

Why? Find out why . . . answer that question . . . and the bars that shut you out will fade away and disappear.

Most people who miss the good times that come with popularity are themselves to blame. Friends and acquaintances would gladly invite you out, ask you to parties, if only you had something to offer that would add to the general gaiety. For that, after all, is why we have parties . . . to get together and entertain each other.

And yet, so many girls and men think the ability to entertain is a special talent. If you mention music (the greatest single factor in popularity) they say, "I can never learn to play the piano or any other instrument. I am too old. I'll need a special private teacher. It will cost so much and take so long. No, not for me."

And so they remain, barred outside because they don't realize that today no one needs to be a musical genius to learn to play . . . that thousands like them have acquired a priceless musical education, right in their own homes, without teachers, without tremendous expense, without tedious practicing and boring scales.

Forget Theories—Do What 600,000 Others Have Done

Already over six hundred thousand men and women have chosen this new method of learning music. Every one of them felt that something was missing from their lives. Ever so many must have been just as discouraged as you may now be. And every single one of them chose this method of learning to play their favorite instrument.

Most of them started towards real popularity by coming across just such an advertisement as this. At first they may have doubted that it could be true . . . that a way had been found to make learning to play easy, delightful and inexpensive instead of boring and prohibitive because of the cost of private teachers.

But every one of them read the offer we are now going to make to you. And every one of them proved to their own satisfaction that they could actually learn to play in their own homes, without a teacher, in half the usual time and *at a cost of only a few cents a day!*

Make up your mind right now to read this offer through. Take advantage of the opportunity it brings you, yet place yourself under no obligation. Here it is . . . the offer that convinced over six hundred thousand men and women that the U. S. School of Music Method was the ideal way for them to learn to play.

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Saxophone
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Please send me your free book, "How You Can Master Music in Your Own Home," with inspiring message by Dr. Frank Crane. Free Demonstration Lesson and particulars of your easy payment plan. I am interested in the following course.

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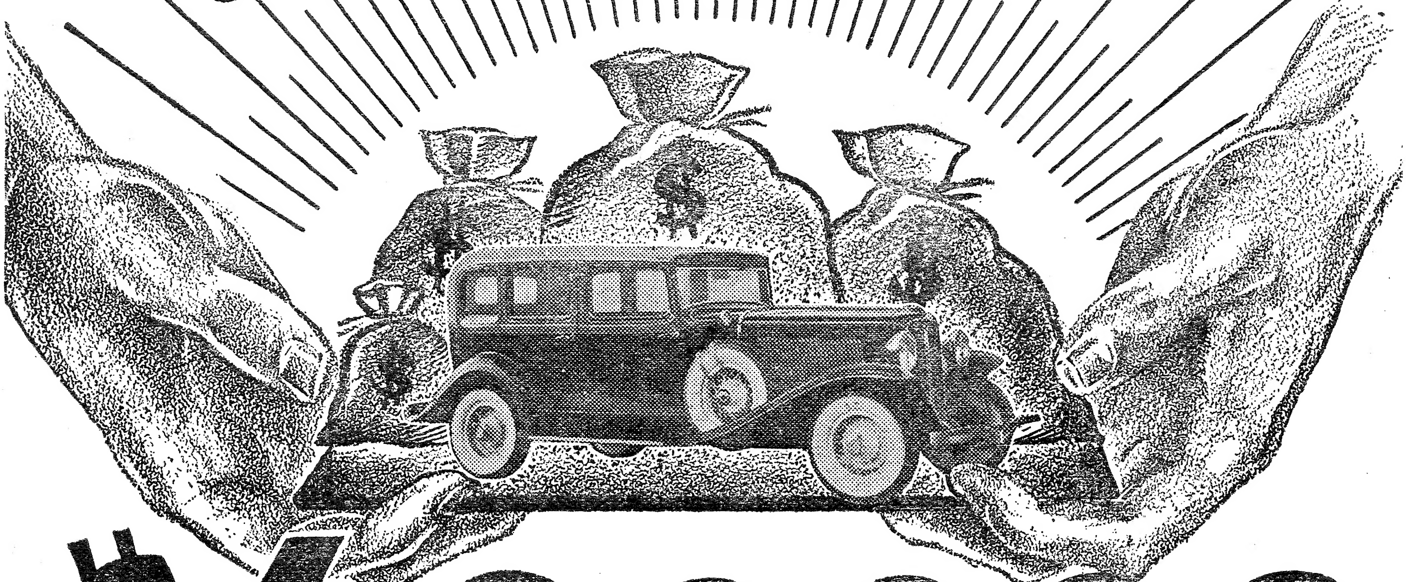

I'll give away this Fortune

$6000.00 in Cash Prizes

I'm going to give $3,500.00 Cash to some deserving man or woman; $1,000.00 to another; $500.00 to a third; $200.00 to a fourth—25 Big Cash Prizes in all, totaling $6,000.00, and 200 additional Grand Prizes worth Hundreds of Dollars. Every month I am distributing many, many other rewards worth hundreds and thousands of dollars. Sounds too good to be true? **But it is true** and here are my reasons for doing so: We have a big manufacturing plant. We are one of the country's large distributors of famous Beauty and Household Products, and this stupendous Cash Distribution is a part of our nation-wide advertising campaign. Every dollar spent in this gigantic Cash Distribution will help make our products known in every community. You see, this is our way of advertising.

Think What $3,500.00 Would Mean In Your Life!

$3,500.00 ALL CASH — to spend as you like. Your worries gone — Your dreams come true. All the joy and happiness you have been longing for — over night. Probably you would start in business — buy a home — pay a mortgage — or invest this money for greater opportunities — $3,500.00 Cash would give you a flying start toward the better things in life!

HUNDREDS HAVE WON

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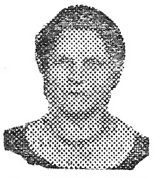
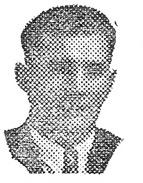


Mrs. Elizabeth Gritzke, New York, won over $1,500.00. She writes: ". . . the squarest firm I ever dealt with."



Joe Walsh, a miner in Pennsylvania, won $4,700.00 in Cash Prizes.

Be Prompt! $100.00 Cash Certificate At Once!

To make it worth your while to be prompt in sending your name — if you will see that your letter or postal card is postmarked not more than three days after you read this notice, I will send you a $100.00 Cash Promptness Certificate AT ONCE, entitling you to an extra $100.00 in Cash, should you be the fortunate winner of the First Grand Prize.

TOM WOOD, *Manager*
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Yes, tell me quickly, without any obligation or expense on my part, how I can win $3,500.00 and enjoy happy, carefree days again.

My name is..

Address ....

Town.. State..........................

Date I read this offer...

AMAZING STORIES
THE MAGAZINE OF SCIENCE FICTION

VOLUME 7

MARCH, 1933
No. 12

T. O'CONOR SLOANE, Ph.D., *Editor*

Editorial and General Offices: 222 West 39th Street, New York, N. Y.

Extravagant Fiction Today - - - - - - - - - - *Cold Fact Tomorrow*

The Slow Advance of Early Science

By T. O'Conor Sloane, Ph.D.

THE work of Archimedes took two trends. One was in the direction of engineering. Extraordinary stories are told of his work with the lever with which, it is said, that he enabled King Hieron to lift a ship by an application of this first of the "mechanical powers." He is supposed to have done a great deal to defend Syracuse when it was attacked by the Romans, and it is told of him that when the siege was over he was working on some problem in the sand of the seashore when he was wantonly killed by a soldier. He seemed rather to minimize his engineering work, considering that it was of little importance or dignity, compared to his work in geometry and mathematics. The monumental discovery is attributed to him of the determination of the specific gravity of metals, or objects heavier than water. It is told of him that it occurred to him when he was entering his bathtub and watched the overflow of the water and that he hailed the discovery by rushing through the streets in complete dishabille, calling out, "*Eureka*—I have found"—the word "it" being presumably understood. It gave him a method of determining whether a jeweler had cheated the king by substituting silver for gold in his crown. It is even said that Archimedes approached the calculus in his work which put him centuries ahead of his time.

As we come down the ages, we read of other scientists who developed or illustrated the laws of physics and some of them made most curious blunders. Otto Van Guericke did wonderful work on the pressure of the atmosphere. He had constructed two hemispheres of metal and by using a leather washer made a tight joint between them, using the air pump of which he is claimed as the inventor; he pumped out air from between them, thus establishing a practical vacuum. To illustrate its intensity, he had two teams of horses attached to it—one team for each hemisphere, so as to pull against each other—but they could not separate the hemispheres. The experiment, with many other of his achievements, are illustrated in woodcut in a contemporaneous book by him. But the point involved in his experiments about the hemispheres is one that has attracted little attention. If he had attached one hemisphere to a post or a tree, for instance, and had one of the teams of horses pull the other hemisphere, they would have produced just as great a strain as double the number had in the first case, and this seems never to have occurred to the ingenious old-time scientist.

It was believed for many generations that a large mass, such as a big stone, being pulled against the earth by many pounds, would fall faster than would a smaller one, because the smaller one is not pulled down so hard. But the fact was overlooked that it required more force to move the big stone than to move the small one. Galileo would not accept this idea, so to confute it did what might have been done thousands of years before; he threw a large and small stone from the same height and both reached the ground simultaneously, or practically so, the resistance of the air not being sufficient to invalidate the experiment.

Various methods have been used for measuring time, in the line of water clocks and sand glasses and the like. It is said that in the Cathedral of Pisa Galileo noticed that the altar lamp took the same time for each swing, whether the swing was long or short. Of course, this was an approximation to the truth, but this was near enough to figure as the isochronism of the pendulum. The escapement of the clock followed.

These few examples illustrate the slow progress of science. Galileo's work was done in the seventeenth century, nearly two thousand years after Archimedes. His discovery of the motion of the moons of Jupiter gave him the idea of the planetary system, though the absolute proof of the motion of the earth around the sun came many years after his time. It is interesting to note that Galileo died in 1642, the year of the birth of Sir Isaac Newton.

Slow as the science of physics progressed, chemistry did worse. The alchemists devoted their energies largely to the transmutation of metals, trying to get gold and silver out of the baser metals such as lead, and building up a very fanciful scheme of nomenclature of which a great deal remains to the present day. Thus ashes of wood were boiled in a pot of water, a solution of potassium carbonate was obtained, so the name of "potash" is inherited from the old makers of the compound from wood ashes.

The name pyrites, whose root is the Greek word meaning fire, has been affixed to native iron sulphide, from which sparks could be struck, and the ancient name has been slightly modified and pyrite is the native mineralogical name of iron bisulphide. Exactly when the name originated might be quite hard to determine. The old chemists, not satisfied with the idea that when a substance increases in weight something has been added to it, invented an absurd affair called phlogiston, which when added to a substance was supposed to take away its weight, and this absurdity was believed in by the world of chemists for a number of years. Therefore when iron gained weight when heated in the air, instead of believing that something had been added to it, which something really is oxygen, the phlogiston theory was that phlogiston was taken away from it and it increased in weight. If they had been able to isolate such a thing as phlogiston, they would have had the anti-gravitator of our modern tales of interplanetary travel. Then when iron oxide was reduced to metal and of course weighed less than the oxide, it was said that phlogiston was added to it and buoyed it up, as a life preserver would buoy up a drowning man.

The Tomb of Time

By Richard Tooker

MANY of our readers who have visited the Luray caves in Virginia and the Mammouth cave of Kentucky, those who have gone to Bermuda and have seen the beautifully illuminated cave in the coral rock of the Island will be deeply interested in this story, which depicts wonderful adventures far underground by three explorers and their perilous encounters.

Illustrated by MOREY

CHAPTER I

IT was my friend Roger Anson who was responsible for that second expedition into Comanche Cave, which was fated to leave me a disappointed scientist, withal a very happy man. Roger was one of those wealthy, influential citizens who are continually promoting enterprises in behalf of scientific progress. In fact, his amateur enthusiasm was so extreme that had he always followed his own inclinations he might have done more harm than good. My position as assistant curator of the Colorado Western-Indian Museum had enabled me to cultivate his acquaintance, and though he was all of fifteen years my senior, he insisted that I call him Roger. As he said, I seemed older in mind than he, and certainly he was a Tom Sawyer who never would grow old.

When he was admitted to my office that sunny June morning, I knew immediately that some new project was afoot, and I was prepared for anything from a treasure hunt in the South Seas to an expedition among the Eskimos in search of Roald Amundsen's body. Roger was short, ruddy and apparently rather fat, though he was every ounce hard muscle and could wear out many a far younger man on the killing trails he followed to adventure in every quarter of the world's wildernesses. When excited he had the appearance of a human dynamo about to fly to pieces from excess rate of rotation. His keen, blue eyes, that never had needed glasses, were shining with pent-up high spirits when he sat down in the buffalo horn armchair where I received my visitors among the bizarre trophies and curios that were the emblems of my profession.

"Bob," he began, "it's too good to keep. You will recall that I was never satisfied with our first exporations of Comanche Cave. I always did feel that we hadn't covered the ground thoroughly enough; and now Ed Struthers and Charley Van Mar have returned from their hunting trip in Middle Park to verify my suspicions."

"So they visited the cave?"

"Yes." He shifted his position with that well controlled, nervous impatience that always preceded an eloquent and inspired outburst. "And as luck would have it, I happen to be one of Struthers' best friends, a sort of father confessor. He told me something he probably would never have mentioned to one he didn't absolutely trust. Furthermore, Van Mar testifies to the truth of what Struthers reported, and they are both as sober as judges about it."

"You mean they found important chambers which we failed to map?"

"Probably—yes, that's included." He shifted farther out on the edge of the chair, and I knew that the real revelation was forthcoming. "But that isn't what interested me. They claim to have heard sounds in the chamber I believe we named Hamlet Hall—sounds that resembled the human voice. Moreover, they found a footprint which must have escaped us. Now just a minute—I know that the fact that the footprint was humanlike doesn't mean anything. If it were merely that, it would have been made by a modern species of Indian. But it was only part human, according to Struthers, and it was in hard rock, implying great age. It looks to me like a clue to the forgotten past if there ever was such a clue."

"Interesting," I admitted, "but it isn't likely that the footprint could have been of prehistoric type. You know we have little or no evidence of primitive man in North America."

"What about the Calaveras skull?" he shot at me—an old argument; and before I could reply that it was as much *pro* as *con* regarding the Calaveras skull,* he was off again.

"It's worth investigating, Bob. If we can find a trace of man in the primeval state, we can overturn a lot of scientific dogma prevalent in the United States. It would mean a big reputation for you. Understand, Struthers isn't one who could be easily deceived, and Van Mar knows a little about geology. I feel there is enough in their story of the footprint to warrant another expedition. And on top of that are those voices which they were unable to locate. You know that Hamlet Hall had the properties of a huge, concave sounding board—sounds made in the distance underground often echoed, or resounded, in the thin formations of the place, and at the same time we proved that no sounds made outside could be heard so far back in the cave."

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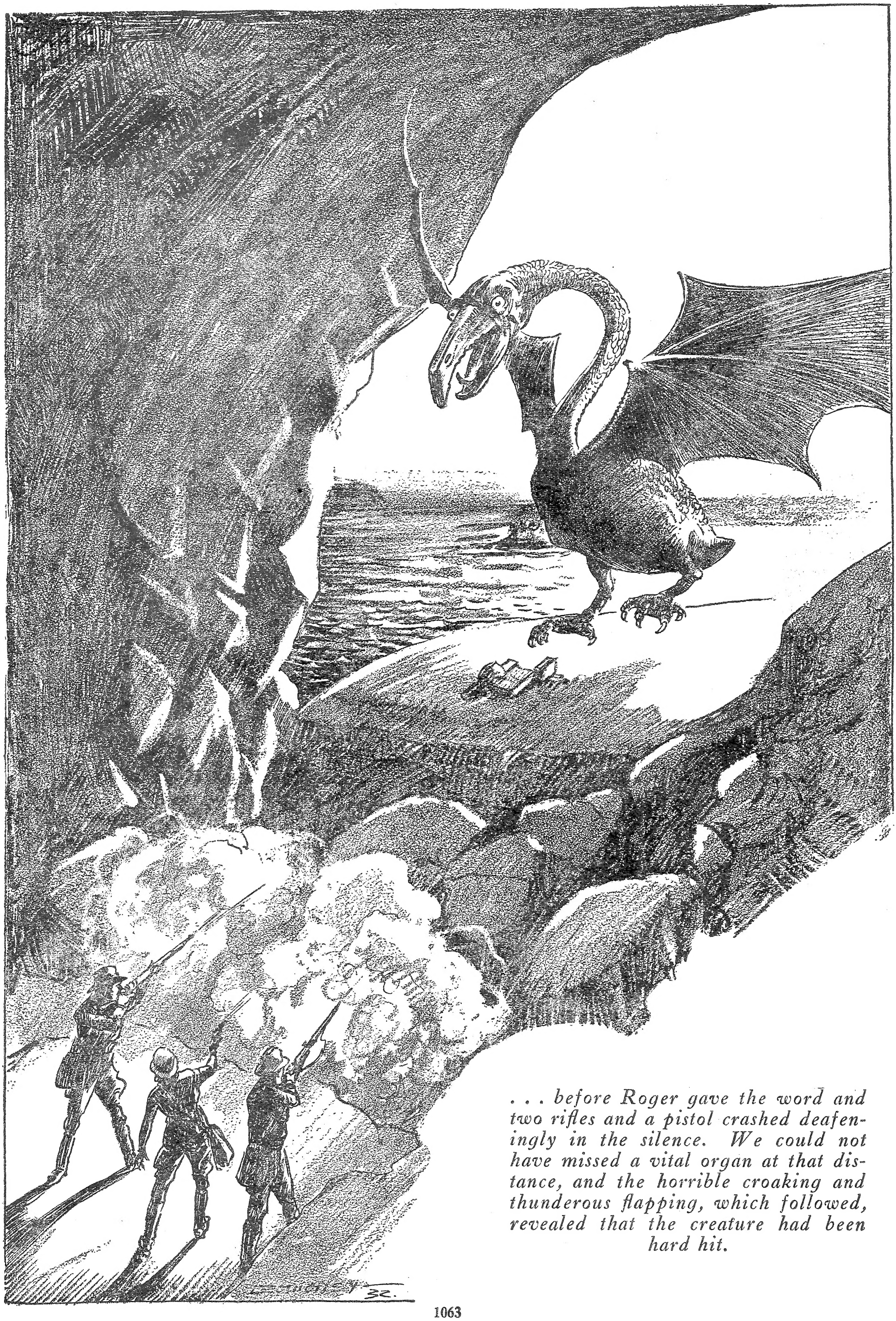
* The Calaveras skull was unearthed by Prof. J. D. Whitney in Calaveras County, California in 1886, and was believed by him to be evidence of a type of New World man older than the Indian.



. . . before Roger gave the word and two rifles and a pistol crashed deafeningly in the silence. We could not have missed a vital organ at that distance, and the horrible croaking and thunderous flapping, which followed, revealed that the creature had been hard hit.

"You're sure no one was lost in the cave?" I hastened.

"Now you have cued the real evidence," he replied instantly. "Struthers is positive there was something human in the voice, yet it was not natural, that is, it was different from any sound he had ever heard from a human throat. When they shouted an answer the voice was unable to frame an intelligible reply. It merely babbled, or wailed, as I understand it. When they tried to find where it came from they failed utterly. The last they heard of the voice it seemed to come from a long distance underground. You can imagine that under the circumstances two amateur investigators couldn't have felt exactly easy in mind. They decided between them not to say anything to the others of what they had heard. So far, they haven't told a soul besides myself, and they don't want the story made public, for fear of being ridiculed for a couple of superstitious hoodlums."

"It might have been one of their party playing a joke on them," I suggested.

"No; the rest of them, the guide and two others, had gone hunting, and both Struthers and Van Mar are positive that they did not come near the cave; in fact, the guide refused to enter the cave out of superstitious fear, and the other hunters were afraid of getting lost underground. They tried to persuade Struthers and Van Mar not to go in. As for any one else being up there near the cave, you know what an out-of-the-way place it is. Not even a hunter or trapper gets that far more than once a year. I'm in favor of making another trip to the cave and studying that footprint, also going deeper into those passages which you thought of little importance last year."

"Well, I could go, of course," I hesitated; "but you see this work on my table. Here are about five hundred specimens to classify from the new mounds we are opening up at Elk Horn Creek."

I could see a mischievous twinkle in his old-young eyes. "By the way, Bob," he said softly. "Willa is wild to go with me."

I laughed with some embarrassment. Since Roger was Willa's father, it was well known to him, that I had long been especially interested in her, and that I was not likely to turn down an opportunity of accompanying her on an adventure that would take us away from all rivals, of which there were many, not only because of Willa Anson's prospective inheritance, but because of her personal charm. As a matter of fact, the promise of Willa's company would have drawn me into almost any wild goose chase, and Roger knew it.

"I'll think it over, Mr. An— Roger," I hedged. In spite of his protests I could never quite accustom myself to calling him Roger. "But I'm afraid the curator will want me to stay until this work is out of the way."

"Nonsense. I'll pay the field expenses; that always gets him."

He was on his feet, preparing to leave, and he was in his most expansive mood, barrel chest thrown out to the peril of his vest buttons.

"I'll have the supplies shipped to Antlers," he said conclusively. "Box up your equipment, Robert, and send it on."

"You've made me entirely dissatisfied with my present job," I said, going to the door with him. "Anyway, Willa will enjoy the trip whether I go or not. She likes roughing it. If she were a man I'd say she was a chip off the old block."

Roger slapped my back. "Ever since her mother died she's been getting to be more of a son than a daughter. I'm sort of depending on you, Bob, to keep her from reverting to the pre-Rib stage."

"You make me feel as if you were the suitor and I the father," I stammered, and then his hearty laughter was coming back through the door, as he jollied the secretary on his way out.

My day's work on the Elk Horn collection had been completely ruined by Roger Anson's visit. The tale of the footprint and the uncanny voices in Comanche Cave was not so much the cause of my disrupted concentration as Willa Anson. I had been a field investigator long enough to disparage the reports of laymen. I had found too many wild rumors explained by trivial causes to believe that Roger Anson's enthusiasm was based on any very unusual phenomena. But Willa Anson's companionship on an extensive expedition into the wilds of the Rockies was sufficient to make the project of overwhelming importance.

Still dreaming of Willa and wondering if I could ever overcome my inferiority complex sufficiently to ask an heiress to be the wife of a poor scientist, I went to my files and got the maps of Comanche Cave, as well as a tray of representative specimens which I had obtained a year before, when Roger Anson had sponsored my first exploration of the place.

The map did not show any passages leading out of Hamlet Hall save Rainbow Avenue, which connected it with the rest of the system of fissures. I recalled Hamlet Hall as a colossal cavity, walled with black oxide of manganese, whose gloomy majesty had suggested its name to Roger Anson. None of the flints, spalls and hammerheads which I had picked up had come from Hamlet Hall, which was several hundred feet underground and more than two miles from the main entrance. Nevertheless, I was inclined to think that the footprint reported by the hunters had been made by an Indian of modern species. It probably appeared somewhat distorted, because of the slipping of the foot when the impression had been made in the latterly solidified mud.

The telephone rang while I was absorbed in the Comanche Cave data, and I thrilled as the voice of Willa Anson responded to my lazy "hello."

"Dad telephones that we are going to Comanche Cave next week," she said with her customary and disarming directness.

"I'm trying to see a way out of this work on the Elk Horn project," I replied. "You know I want to go, Willa, and, frankly, it isn't because of this fable of the footprint and the spiritual voices."

She laughed deliciously. "You're so transparent, Bob. We'll have the time of our lives up there. I know you can convince old Talbot that this is important enough to follow up right away. And, finally, Mr. Robert Y. Langtree, you'd better make up your mind, because I'm thinking of having Dad invite Jim Sheldon if you can't get away."

Sheldon, a young engineer with no more income than I, had been trying to court Willa for some time, and the mere mention of him was a livid danger signal to me. My prompt and emphatic decision to go to Comanche Cave with Roger Anson and his only daughter, even if I had to quit my job to do it, incited a burst of musical laughter at the other end of the line before the connection was broken.

Half an hour later I had called the curator on the telephone, had exaggerated the importance of the proposed expedition to Comanche Cave, and had arranged to have a field man called in to complete the work of classifying the Elk Horn Creek specimens. It was a lover and not a scientist who began feverishly packing up his equipment for the trip into the mountains, nor had I the slightest premonition that I was preparing for one of the wildest adventures ever allotted a man by the gods of chance and the disentombed secrets of the earth.

CHAPTER II

BY the time we had packed and shipped our dunnage to Antlers, the nearest railway station to Comanche Cave, I had called on both Struthers and Van Mar to get the details of their experience first hand. There was a vague notion in my mind that these sportsmen had been planning some kind of practical joke on Roger. But their sincerity proved unquestionable. As far as they were concerned the cave held a secret bordering on the supernatural. Their stories not only coincided as to general construction, but they had that variation of impression which always attends actual experience from two viewpoints. Moreover, as additional testimony to their veracity, both Struthers and Van Mar prevailed on me to tell no one exactly what had reawakened my interest in Comanche Cave, and Roger and Willa already had been sworn to secrecy.

We left Denver without interviewing any reporters, being uncertain as to the reasonableness of our undertaking, and having no desire publicly to admit failure upon our return from a quest for the "spirit voices" of Comanche Cave and its alleged satanic footprint.

Late in the afternoon we reached Antlers, where we had little trouble in finding suitable horses for pack and saddle and a recommended guide, or rather hostler, since we had no real need of any one to show us the way to the cave. Roger insisted on overseeing the outfitting without our help, and before dark Willa and I wandered away into the forests of lodgepole pine surrounding the town. When we rejoined Roger at the big log hotel, where we would pass our last night in civilization for some time, he still was effervescing with enthusiasm.

"I believe we've hired the same guide that took out the Struthers-Van Mar party," he informed us. "When I mentioned Comanche Cave he looked at me like an owl, and said it was a 'tarnation good place to stay away from, by jinks.' If you ask the natives hereabouts we have the job of laying a ghost in Comanche Cave."

Our cavalcade was ready when we finished breakfast early next morning. Seven horses were waiting in the yard in charge of the guide, whom Roger already was calling "Pete," with his customary hasty familiarity. Pete's yellow-toothed grin and Willa's slim grace in her khaki riding habit combined to make our departure from Antlers a most pleasant occasion, regardless of the noisome curiosity we had aroused in the town owing to the mysterious and probably dangerous looking instruments that protruded from several of the packs. I had brought along some specially designed electric lanterns, or headlamps, for use in the cave and a good-sized camera for flash work. What with picks, spades, dynamite and a month's supply of provisions, there was all the three pack horses could carry, besides what we had in our saddle bags.

As nearly as we could estimate from previous trips, it was nearly fifty miles to Comanche Cave, and scarcely a foot of the trail was on the level. We made slow but steady progress the first day, and toward evening reached a spur from which a grand view of Middle Park and the Front Range was visible. When we descended to the banks of a swift mountain stream for night camp, we were halfway to the cave, and had scarcely felt the strain of the long jaunt, though two of the horses were limping from stone bruises.

We made even better time next day in spite of perilous climbing along narrow cliff trails. At noon we sighted the tri-pointed peak that marked the locality of Comanche Cave. Great forests, marred by fire and axe, were now dropping away, or sweeping up, on all sides, and the wild, rugged landscape was constantly changing like a vast and infinitely varied cinema.

Roger had begun to boast about our extraordinary good fortune, when on the last steep ascent, one of the pack horses stumbled and fell, rolling to the bottom of the grade. The unfortunate animal was not hurt much, but two hundred pounds of provisions were badly shaken up. It was nearly dark before the pack was remade and we started on again, following a winding ravine over the last lap of the trail to the cabin where we were to leave the horses and go on afoot.

We found the cabin in good condition. Some trapper had wintered there, but he had left everything only a trifle dirtier than before. South of the little clearing the still waters of Bush Creek glinted through the scattered growth of red fir. We still were nearly a mile from the cave, which lay on the other side of a nearly perpendicular wall on the west.

After ten hours of sleep in the matchless atmosphere of western Colorado we arose fit for almost any undertaking. Willa insisted on doing her share of packing over the bluff, and by ten o'clock we were crawling up the precipice to Comanche Cave, laden with provisions. We had left the horses picketed in the valley below, having stored our goods in the cabin behind strong oak bars, which would be sufficient to keep out the curious bears and wolves that were the only marauders to be feared.

Two hours later, somewhat exhausted by the long climb, we started down the west side of the great ridge to the limestone strata under which lay Comanche Cave. It was Willa, who saw the first signs of the cave, probably because she had the lightest pack, and therefore more energy to expend on observations.

"Bob, I can see the cave!" she sang out, bringing us all back on our heels, for we had almost to lie down on our backs to keep from falling forward.

"It's a false entrance," I said, following the direction of her finger to a huge brush-screened sink in the escarpment across the valley. The main entrance of the cave was directly below us, where the talus slip, which we were descending, joined a small plateau. We were now in territory drained by the Grand River system. South of us lay the Vasquez Mountains, and nearly due west the famous Red Gorge.

A few minutes later we staggered out on a wide sandstone shelf near the entrance of the cave. The pole shanty, which Roger and I had built the year before for our supplies, proved to be in even better condition than the cabin on the other side of the bluff, for no trapper had left his refuse there. Roger discovered a few empty rifle shells and a flour bag which he declared must have been left by the Struthers-Van Mar hunting party. I did not dispute the matter. It struck me at the time that I was uncommonly disinterested in the practical details of the expedition. With Willa near, I had the feeling of a man who merely dreamed that he was alive.

After a rest in the shade of the dwarf pines that dotted the little plateau, which was to be the headquarters for our activities underground, I took Willa to the main entrance of Comanche Cave. The whole of the vicinity at the level of the limestone outcroppings showed signs of cavities, and I pointed out as best I could, the general extent and location of the subterranean passages that honeycombed the mountain on the north and east. The main entrance of the cave was not very high; one had to stoop to enter it. But it was nearly fifty feet wide, and a few yards into the mountain-side the floor dropped down steeply while the roof remained fairly level. This I explained to Willa, for we did not enter the cave at the time.

Pete had officiated as a camp cook in our absence, and when we returned a piping hot luncheon was ready. By one o'clock we had begun the climb back to Bush Creek for our second and last load that day. Pete was growing more and more dubious concerning the cave and our plans to enter it.

"I wouldn't go into that there hole f'r a million dollars," he avowed, as he mopped his coffee-colored brow with a bandana handkerchief during a breathing spell.

"Well, I'm not going to give you two million, so stay out," said Roger, rather testily. He had developed a painful wrinkle in the sole of his foot, and his progress was more like the playful capers of one who dances on or between upturned sword blades.

For the next three days we were kept busy packing supplies and apparatus over the ridge. But we left most of the provisions at Bush Creek for Pete to carry over later as we needed them. A bear must have frightened the horses once during our absence, for three of them broke loose from their tethers, but Pete saddled one of the others and soon ran the strays back to the creek, where we caught them with little trouble. Otherwise, we had good fortune during the laborious preliminaries to the actual work in Comanche Cave.

As my fascination for Willa Anson increased, my interest in the underground adventure waned. It all seemed to me a lot of overworked imagination, springing from the frightened hearts of a couple of amateur explorers. But Roger's reactions were diametrically contrary to mine, and Willa became almost impatient to see the footprint in Hamlet Hall. I thought to myself that the mangy savage, who had probably made the track several centuries before, had never had such a pretty woman interested in his legacies material or immaterial.

The day after the last of the apparatus had been packed over the bluff, and Pete had been left alone with the horses, Willa and I entered the cave for a short sight-seeing tour, carrying a pick and an electric lantern between us. Roger's foot was paining him so much at the time that he decided to rest up in preparation for the real work in Hamlet Hall.

As I had surmised, Willa proved somewhat disappointed with her first venture into the outer corridors and chambers of Comanche Cave. She had been comparing it in her mind with the Wyandotte Cave of Indiana, through which she had gone as a tourist, and which was far more intricate and scenic than Comanche Cave, or at least as much of it as any one had so far seen.

"Wait till we get into the inner chambers," I cheered her. "You'll see some sights that are as exciting as Wyandotte or the Mammoth, too. And if we hear Struthers' mysterious voices we'll have a thrill that ought to stand us all on our toes. You know, just between you and me, it wouldn't be so funny to hear something like that half a mile underground with only a light battery and a few matches between one and the blackest pit of Hades."

She shivered as we headed for the entrance and the sunshine of the mountain side. "I don't mind the dark," said Willa, "but deliver me from those voices."

I was of the opinion that if she would always walk so close to me I would cheerfully have braved the ululations of all the witches of Endor in the very heart of Lamia's enchanted catacombs.

CHAPTER III

WE had agreed that the cries heard by the hunters might have come from some one lost in the cave; and though we could not expect to find any one alive at such a late date, we felt obliged to search all the passages before we concentrated our attention on Hamlet Hall.

By Sunday Roger's inflamed foot was so much improved that we decided to start early the next morning, and we passed the entire Sabbath in getting our equipment in order. The prospect, however remote, of finding a corpse somewhere in the pitch-dark cavities under the mountain was not a pleasant one; but even Willa was not squeamish about it, and Roger, at least, was quite positive that no ordinary human being was at the source of the mystery.

Nevertheless, it was a pretty somber trio of adventurers that hurried through breakfast in the cool dawn of Monday morning. Roger's witticisms were few and far between, and occasionally I thought I saw Villa shudder, but to me it was all more or less in the day's work. While we fastened on our various harnesses, I managed to draw several wisecracks out of Roger, and by the time we had ducked under the rock shelf at the main entrance of the cave, we were all in a cheerful and confident frame of mind.

Roger and I carried the two big lanterns, the batteries being fastened to our backs, the reflectors attached to special head-gear. Besides these, we were equipped with a pick and a spade, several sticks of dynamite with fuse and caps, and a pedometer. Willa's pack consisted of the canteen, provisions for two meals, a coil of light, but strong, rope and a large flashlight. Save for the alpenstocks, our hands were free, and our boots had been prepared for dangerous footing by attaching sharp caulks to soles and heels. Short cables could be snapped between us to rings at our belts during especially dangerous climbing; and for protection against any wandering wild beast encountered in the passages, we were armed with heavy pistols.

Comanche Cave lies in a territory predominated by the Comanchean system of rocks from which it derives its name. However, by some geological irregularity, the caverns themselves are for the most part imbedded in gray limestone, a remnant of the Subcarboniferous period. Penetrating the vast maze of grottoes and tunnels from the western entrance, one plunges into Stygian darkness, down a steep slope, strewn with boulders and overlaid by the age-gathered remains of wild animals. Crystalline formations on the walls and roof flash and scintillate in the light of the explorer's torch, while a seemingly bottomless abyss is always retreating ahead. The desolation and profundity of that mighty causeway, suddenly contrasted with the bright sunshine of the mountainside, had suggested the name of Hell Gate to me, and so I had indicated it on my map.

At the foot of Hell Gate is a level bed of nitreous soil, covered with footprints old and new. The incautious investigator, marvelling at the play of light on the dome above, and deceived by the apparently unbroken stretch of ground, might easily plunge to his death in a rectangular pit, or chasm, more than two hundred feet deep by the plummet line. This pit appeared on the map as Lucifer's Leap, and Roger and I did not pass it without a firm hold on both of Willa's arms, lest she walk too near and slip over the edge. Our wisdom in holding Willa was evident in her remark a moment later.

"I could feel a most terrible fascination drawing me into that hole."

"Certainly," I replied, ruefully, "and didn't Roger and I feel the same way the first time we passed it."

Several corridors branched out from the chamber enclosing Lucifer's Leap, but after shouting into all of them and receiving no answers but echoes, we continued along the main passage, intending to visit Hamlet Hall before we attempted the tedious task of searching the by-ways. As luck would have it, we were not more than two hundred yards from Lucifer's Leap when Roger's lamp lighted up the eyes of some wild beast coming toward us. Whether it was a bear, a wolf or a wild-cat we never learned, for it turned and ran up a branch corridor before we could get out our pistols. Passing the black hole where it had disappeared, we could hear the rattling of its feet in the distance, remarkably amplified by the acoustical properties of the cave.

"If that poor varmint had been as scared as I was, it wouldn't have been able to run," confessed Roger, drolly, as we hurried on toward the wall of darkness that steadily advanced before the rays of our head-lamps.

After leading down gradually for several hundred yards, the main passage suddenly drops steeply in a sharp curve. At this point many lime-white stalactities and stalagmites give the impression of huge jaw teeth in the gaping mouth of a whale.

We snapped ourselves together with the cables before starting down the treacherous grade, and before we had reached the bottom we could hear the low rumble of Roaring River. Completely surrounded by the ghostly figures of the stalactites, our gigantic shadows dancing grotesquely behind, we felt as if in another world, and the sensation was augmented by the increasing roar of the underground stream.

Rounding another sharp curve, and pushing through a passage choked with massive white columns, we entered Black Gorge, at the bottom of which flowed Roaring River. The thunder of rushing water had grown so loud by this time that we could not hear each other speak without shouting, and our lamps had become dimmed, and their rays diffused by films of mist on the lenses. Keeping a safe distance from the spray, which continually flew up out of the chasm, we followed the right bank of the gorge to a natural arch of alabaster that spanned the stream. The arch was round and slippery, and even with the caulks on our boots and our hands clasped tightly, we could not feel that our balance was any too secure. The mere consciousness of the danger below us, in that inky, froth-rimmed gorge, was sufficient to test the most determined will.

I breathed a sigh of relief when we reached the great shelf of limestone on the other side of the stream, while Roger passed a hand over a brow that was beaded with perspiration.

"That's the only hazard in the whole cave that still leaves me cold," he admitted.

"Where does it lead to?" shivered Willa, looking back fearfully.

"No one knows," I replied. "The water falls into a pit a few hundred yards from the arch. It must empty into one of the canyons of the Grand River tributaries."

We did not regain perfect self-composure until the rumble of Roaring River had receded to a faint murmur behind us and the beauty of the colored rocks and "helectites" in the Grand Circuit had begun to glow and shimmer before our swaying lamps. Again we passed numerous pits and branches on both sides, overhead and underfoot; and though I was convinced of the futility of it, Roger insisted on shouting into every crevice. The odd acoustical tricks, performed by the caverns with our voices, were sometimes amusing and sometimes startling. Once when Roger shouted loudly into a deep hole we went on for some distance before his voice boomed suddenly out of the darkness behind in a hair-raising *who-o-oof!*

From Cathedral Dome, the most central chamber of the cave, we were required almost to double on our tracks for a considerable distance in order to reach Rainbow Avenue, the only known inlet to Hamlet Hall. The way was extremely difficult, leading through a series of terraces, connected by narrow crevices. Cave-ins and stalactites had partly blocked much of the way, and we were frequently forced to jump several feet down an embankment, or over deep fissures, sometimes lowering ourselves with the cables where the drop was too far to risk jumping. Gray, mouse-skinned bats frequently brushed our faces in their uncannily sensitive flight, and twice we passed through chambers that were literally alive with a species of light brown cricket. Once Roger fell and his lamp went out, my own being switched off almost simultaneously by my effort to catch him. We were plunged in almost tangible darkness for several seconds—a sensation which cannot be appreciated until one has experienced it half a mile underground in a passage so close and narrow as to give one the frantic feeling of being buried alive.

Rainbow Avenue was reached at last when we were nearly exhausted. For one who never before had seen it, this beautiful passage was well worth the struggle through the crevices. Great spars of gypsum and arches of iridescent crystals filled the long, straight corridor, which led gradually downward. For ages the natural acids formed there had been carving extraordinary figures in the calcereous sediments, and everywhere were fairy arbors, rosettes, gargoyles and curious nooks of alabaster.

Halfway to Hamlet Hall the passage widens into an oval-shaped dome of smoky violet color. Wondrously clear and motionless pools of water have accumulated in the hollows from the seepage of deep springs, while, scattered over the pools, like weird cameos in mirrors, are oddly eroded islands of pink and chrome yellow, reminding one of the ocean deep.

We were somewhat wet before we got across Enchanted Grotto, as Roger had named the place. Except for Willa's startled cry upon bringing up a blind crayfish on the toe of her boot, we gained the last stretches of Rainbow Avenue without mishap, and half an hour later entered the dark network of corridors at the southern end of Hamlet Hall. Here there were no linestome formations to relieve the depressing monotony of darkness; the glassy surfaces of volcanic rock reflected our lamps from all sides and angles, and one was impelled to flinch and dodge as if automobiles were bearing down on him under a cloudy night sky.

Owing to the distorted light reflections and the numerous passages, the entrance to Hamlet Hall was very confusing, and until we passed through the branch corridors we advanced very slowly and carefully lest we suddenly become turned around as to directions. A compass would have been of little use in the cave, because of the deflecting magnetisms of mineral deposits.

Not until we were well into the southern portion of the long, gloomy vault was I aware that I was hungry. When I looked at my watch I found that it was half past twelve. We had been underground for nearly five hours, our shouting into the branch passages having taken up more time than I had thought, since ordinarily we could have reached Hamlet Hall in two hours.

After more hallooing with no better results than to fill the chamber with disagreeable noises, we ate a cold lunch, washed down by water, and went on to the northern extremity of Hamlet Hall. This was the deepest part of the cave known to Roger and me, being nearly two miles from the entrance and more than six hundred feet below the general contour of the surface. We were nearer the sea level than was any accessible point in that part of the Rocky Mountains. However, a circulation of air through Rainbow Avenue kept the chamber comfortably cool, and we were experiencing no distress, when we began searching the floor for the footprint reported by the hunters.

"We may have to divide Hamlet Hall into sections and search it inch by inch," I said after we had hunted for some time without success. But the very next minute Roger's startled outcry called us to a spot near the western wall of the chamber. Under the combined beams of our lamps we gazed in silent amazement upon a most remarkable impression in the rock, undoubtedly the footprint which had so excited Struthers and Van Mar.

In a layer of solidified silt, which must have been brought in ages before by a flood that had later receded, appeared an impression unusually perfect in detail. The heel was undoubtedly humanlike, but the toes were tapered like claws and united, as if by broad webs whose outer edges were faintly visible upon close inspection. I had never seen anything remotely resembling such a footprint, and I could think of no animal, recent or prehistoric, that could have made it.

"Now will you call Struthers a superstitious Indian?" cried Roger, exultingly.

"It's far more than I expected," I admitted.

"Looks to me like the track of a giant frog," said Willa, "and it must have walked right into a solid wall."

I turned my lamp to the left and found, as Willa had implied, that the wall of the chamber was less than a yard from the footprint, the toes of which pointed that way.

"We'll bring the camera to-morrow," I said, none too calmly. "Some casting plaster too; this is worth making a cast of all right. According to the shape of the heel combined with the webbed claws it may represent the human species in a reptilian stage of evolution."

"An amphit, eh?" chortled Roger, who could not suppress his glee at our find. "And now what made the noises? If they were right about the footprint they couldn't have been so far off as to the voice."

"I can assure you of one fact," I replied on my professional dignity. "The being that made this footprint hasn't uttered a sound for a million years. He's been dead since the Mesozoic epoch."

"The Mesozoic!" exclaimed Willa. "Why, that was an age of reptiles."

"Right, and the greatest age of reptiles," I affirmed. "And of all its periods the Comanchean fossils show the largest life-forms. We have indeed stumbled upon a strange clue."

Roger had arisen, his lamp turned on the wall of the chamber.

"Bob, footprints don't come by ones," he announced. "This thing stepped somewhere, and the next track must be on the other side of this wall."

He struck the glazed, streaked rock as he spoke, and we were startled by the hollow reverberation that ensued.

"But that would mean nothing," I hastened to say. "All these chambers have been changed since the footprints was made. There's not a chance in a million that we'll ever find a mate to this footprint. It's a miracle that one has been preserved."

The astounding evidence of the unclassifiable footprint had shaken me more than I cared to admit. I scarcely dared to consider the magnitude of what such a discovery might lead to in revising the theories of science. And I had to reaffirm my own eyesight several times before I was willing to accept the amazing contrast between the reptilian digits and the almost perfect anthropoid arch and heel. Before I had finished measuring the track, to find it a trifle longer than an ordinary foot, though far wider at the toes, Roger and Willa were pounding the walls of the chamber and listening to the dull reverberations.

"There's something besides solid rock on the other side of this wall," called Roger, directly.

Before I answered I struck the floor with my alpenstock at a point where the overlay of hardened silts did not cover the glazed rock. I was surprised to produce the same hollow sound that was coming from certain sections of the wall. Striking the floor at different points, I found several spots which must have been exceedingly thin.

"You're right," I said. "This chamber must be like a cell in a honeycomb. But I think we'd better be more careful how we hammer the walls. We might cause a general cave-in."

My warning impressed Roger and Willa, and there was no more pounding on the rocks. They stood by in silence while I took my pick and dug up a small heap of rock chips to mark the spot where the footprint appeared.

A few minutes later we started back to Rainbow Avenue for the return trip to the surface, resolved to come back the following morning and record our discovery with camera and plaster cast. The significance of the footprint somewhat dampened our interest in the search for the hypothetical lost one; but, nevertheless, we went through the motions of exploring as many subsidiary passages as we could, before our watches informed us that night was drawing near.

The detour through the southeastern portion of the cave was indeed fortunate for science, since we were destined to make another valuable, if not miraculous discovery. We were then about eighty rods (1320 feet), by the pedometer, from the main corridor, in a broad, low chamber whose peculiar fernlike formations had suggested the name of the Everglades. Willa had turned with her flashlight into a small recess on the right, and her exclamation of fright brought Roger and me scrambling to her side.

"The body!" she managed to articulate as we focused our lamps inside the hole.

A human skeleton lay face up on the floor, feet toward us, gleaming whitely under the powerful light, and apparently not a bone was missing. I stepped in and bent down. The bones were half buried in limestone concretions, and a glance at the skull revealed an aboriginal type of cranium.

"This would have solved the mystery of the wailing voice five hundred years ago," I turned to Roger and Willa, after estimating the depth of the concretion in which the bones were imbedded.* "The remains are those of an Indian undoubtedly. If we dug up the floor in here we would as likely as not find some very good Shoshone flints."

While Willa and Roger watched fascinatedly, I carefully picked out the skull and attached it to my belt with a bit of cord, leaving another heap of rock chips outside the recess to mark the place for a future visit with the camera.

Just at sunset we clambered out of Hell Gate and turned out our head-lamps. The setting sun's rays were very restful after the hours of eye-strain underground; but we did not realize how tired we really were until we came in sight of the camp and smelled hot coffee.

"Oh, Java, Java!" called Roger, ecstatically, as our steps quickened.

The aroma of coffee was soon explained when Pete came out of the cabin, apparently overjoyed to see us alive. He had brought over a load of provisions, he explained, mainly a quarter of fresh bear meat. While Pete was declaiming his recent anxieties as to our safety, I untied the skull at my belt and suddenly held it up to his eyes.

"What do you think of that cadaver, Pete?" I asked.

He threw up his hands in horror.

"Gawd A'mighty, man, where did you git that carcass?"

I pointed down dramatically. "Just about exactly underneath where you are standing," I declared, mercilessly. "This Indian has been a good one ever since Columbus discovered America."

My pleasantry had more serious consequences than I had reckoned. Pete seemed much offended by my ideas of what was funny. He refused to wait for supper, starting back immediately for Bush Creek in spite of my abject apologies for upsetting him. The last I heard from him was a muttered comment something like:

"Them sci'ntists ain't got no soul."

And so we prepared and ate a hearty meal of bear steak and pan bread without an audience to appreciate our discussion of Comanche Cave and its miraculous disclosures. When we finally rolled into our blankets, I think our thoughts were similarly concentrated. I know that in my case even my love for Willa Anson, and the exciting idea of sometime blurting it out to her, were temporarily overshadowed by visions of where the strange footprints led and what might be the explanation of the mysterious voice in the nether world.

CHAPTER IV

NEXT morning we were all too eager to get back at the problems of Comanche Cave to worry much about Pete's ultra-sensitive superstitions. The sun had scarcely begun to absorb the dews of night before we were clambering once more into the abyss of Hell Gate, carrying the camera in addition to our other equipment.

Heading for the Everglades to photograph the Indian skeleton, we covered most of those passages which we had lacked time to search the day before. However, we no longer had the faintest expectation of finding the remains of a lost human being. If there was an explanation of the voice heard by the hunters, we were satisfied it would be found in Hamlet Hall?

Though Roger's foot had begun to trouble him again, we made much better time than we had the day before. By ten o'clock we had photographed the skeleton in the Everglades and were deep into the fissures leading to Rainbow Avenue. We rested and ate our lunch in Enchanted Grotto, entering the outer corridors of Hamlet Hall shortly after noontime.

"As soon as we get some good pictures of the footprint we'll cover the rest of the floor and see if we can't find a mate to the first track," I planned aloud.

"Plague on the other track," said Roger, impatiently. "What I want to see is the other side of that wall. Seems to me that footprint will keep, having been there a million years already."

"True enough," I admitted, "but when we start tampering with those walls we may cause a general cave-in and bury the floor of the cave. We want a good record of the footprint before we take a chance on destroying Hamlet Hall. It's going to take dynamite to force a way out of that chamber."

A little later we reached Hamlet Hall, awed to silence by the strange secret it held. I had some trouble in adjusting the camera and flash-rack for a good focus on the footprint, being forced to do considerable excavating around the spot in order to level up. By the time I had the focus to suit me, the hall was ringing and echoing weirdly from the blows of the pick. Then I changed the position of the camera for a second exposure, requiring more heavy picking in the rock. We shall always be positive that it was the noise of the pick that was the direct cause of what ensued. I was slipping a fresh plate into the camera, when a sound broke out which petrified all three of us.

It seemed to come from the left and slightly below, from a cavity adjoining Hamlet Hall. At first a mere babble, as of a child singing to itself, it rose quickly to a howling like that of a coyote, dying way presently to a peculiar smacking or slapping noise.

"Bob!" It was Willa's exclamation as she seized my arm.

"Sh-h-!" I cautioned, hardly conscious of what I said.

The sound broke out again, a little nearer this time, as if something were approaching the wall toward which our eyes were staring. Again a shrill warbling, followed by demoniacal laughter. The ululations increased to a wild tremulo, sank suddenly to a deep, bass mutter, then the smacking noise once more presaged deep silence.

"Wait!" I exhorted, finding voice as well as power to move.

Stepping close to the wall, beyond which the thing seemed to be imprisoned, I knocked with my fist upon what seemed a hollow spot back of the surface of the wall.

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* It has been computed by scientists that certain cave formations grow at the rate of .0254 cm. annually, whereby the age of underground prehistoric remains may sometimes be arrived at.

"Hello, hello!" I called. "Who are you?"

Though I was listening with bated breath and ear pressed to the resonating rock formations, I could hear no sound of movement beyond the wall. Yet when the voice broke out again it was farther away and much lower down. This time we heard only a howl of laughter, or a vocal paroxysm resembling laughter. While we listened the sound died away beneath us.

Again I pounded on the wall, shouting; but there were no more responses.

When I turned to Roger and Willa I found them staring in complete stupefaction at the black wall, head-lamps focussed on the portion behind which the phenomenon had been manifested.

"It must have been an acoustical freak," I stammered, scarcely able to believe the testimony of my own senses.

"Freak, my grandfather's eye!" burst out Roger, coming to life suddenly. "That's the thing that Struthers heard. It's the thing that made this footprint. Let's break through the wall."

I blocked his way as he started forward with the pick.

"Not yet," I cautioned. "We've got to figure this out. We may be on the doorstep of something undreamable. If we make a mistake by acting rashly we'll regret it all our lives."

Willa had already gone to the wall and was examining it minutely with her head-lamp, obviously looking for signs of an opening. The camera and the footprint were speedily forgotten as we followed Willa's example. But, though the voice had been as clear as if it had come through a crevice, we found not so much as a worm-hole in that side of the chamber. Returning to the camera, we held a solemn conference, none of us quite recovered from the consternation into which the inexplicable noises had plunged us.

"It couldn't have been caused by an acoustical freak," Willa protested, as one who believes something one would rather not. "None of our voices could have been distorted to resemble such a racket as that."

"I think you are right," I agreed, as unwilling to believe as she. "Whatever made those sounds was alive, and very much alive apparently."

"*Is* alive, you mean," asserted Roger. "Now don't say in your most dignified, professional manner that it was alive a million years ago."

"If it isn't dead it ought to be," I countered, desperately. "I tell you I had rather not say what I think it might be. The very sounds of the words in my mouth would drive me insane. But whatever it is we've got to remember that, if we release it, we may be in danger. Furthermore, these apparently solid walls are undoubtedly a death-trap of the worst kind."

"Can't we dynamite them?" suggested Willa.

"I've been thinking of that," I said. "It would be the best way if we could find some safe place to wait and see what damage the explosion causes. But even though Hamlet Hall isn't entirely destroyed, we'll need to be prepared for the escape of the being that made the noises. By the sound of its voice it can't be altogether harmless."

"As a matter of fact, we haven't any proof that there's only one of the vermin," put in Roger, who was beginning to see the need for prudence. "The thing came up out of the depths of these caves, and it went back into the depths. It may not be the same one that Struthers and Van Mar heard."

"And how do we know that only one was responsible for the howling," cried Willa. "It sounded to me like a houseful of lunatics all trying to outdo each other."

"Anything is possible," I gave in, completely at a loss what to think, since the discovery defied the test-tubes of science, by which I had measured almost everything else. "Anyway, we'd best bring a couple of rifles with us before we blast the wall, and we can make a kind of bomb by fixing short fuses in a few sticks of dynamite. I move we leave things as they are for the present. We'd better talk this over in the light of day. Believe me, my nerves are all standing on end."

"I feel the same way," Willa seconded. "This is nothing to be decided on upon the spur of the moment."

Roger alone was in favor of forcing the wall and then and there and using the pistols and dynamite against any danger beyond. But Willa and I overruled him; and in the end we stowed the camera and most of our equipment in a marked corridor and made a hasty trip back to Hell Gate and the blessed light of outer day. The many unthinkable possibilities that came to mind as we recovered our equanimity definitely decided us against any drastic steps that day. We passed the afternoon and evening in preparing for either a long exploring trip underground, if we unearthed a deeper gallery of passages, and for a pitched battle, if we found that we had broken into the haunt of a dangerous animal.

CHAPTER V

I DO not think any of us slept very well that night, and long before dawn I was awakened by Willa's movements as she packed sufficient provisions to last us several days if necessary. After throwing a boot at us for awakening him so early, Roger rolled out and helped finish the outfitting.

With the rifles, the extra dynamite and all the cable we had, our loads were appreciable in spite of the fact that we had left most of our equipment in Hamlet Hall. Having had but little real rest that night, we found the climbing unusually fatiguing; but our excitement kept us stimulated to such an extent that we made the trip in less than two hours, after some reckless jumping in the crevices of Rainbow Avenue, which might easily have sprained an ankle.

Upon reaching Hamlet Hall we left most of our gear with the camera and tools and made another attempt to awaken the voices behind the wall. But, though we hammered and shouted for half an hour, we heard nothing but the echoes of our own bedlam, and finally there was nothing left to do but dynamite the wall.

I had brought a small drill with me, and after some violent exertion, I penetrated the rock near the point where we had heard the voice. To my surprise, though I bored fully a foot deep, I did not break through; yet the spot where I drilled gave forth an unquestionably hollow sound when struck. I decided that it was the nature of the rock and the contours of the cavities that caused the resonance rather than any inherent thinness of the strata.

By the time I had tamped down the dynamite with a three-minute fuse, Roger and Willa had returned with the report that the walls all seemed solid near the spot where we had left our dunnage, and after clearing the vicinity of all apparatus, I lighted the fuse, and we all ran back to the predesignated place of safety.

We had our ears well stopped when the explosion came, but the amplification of the noise of concussion was so great that our heads rang deafeningly for minutes afterward. Waiting tensely in expectation of a dreadful avalanche of shattered walls, we were reassured by the quick cessation of falling rubble. Only the echoes of the explosion boomed dully in the distant corridors of the cave, the atmosphere somewhat clouded by fine dust.

Willa and Roger carried the two rifles, when we stole back down the corridor to the place where we had blasted, while I held a dynamite bomb ready to ignite and throw at whatever apparition might confront us from the depths.

To our surprise, we found that the explosion had done no extensive damage. Only a few cracks radiated from the center of concussion, nor did we dream how perilously near we had come to disaster. However, the charge had blown a large hole in the wall, and a cautious inspection of it revealed that another chamber had been tapped not more than three feet from Hamlet Hall. The substance of the partition, under its igneous glaze, proved to be porous and brittle, which probably accounted for its reasonance.

Training our head-lamps on the hole, we drew off a little way and waited in tense silence, bomb and rifles ready. I tried to convince myself that no living creature could possibly have been imprisoned behind the wall, but the evidence of the mysterious voice could not be laughed away, and if our knocking and shouting had been sufficient to attract whatever was hidden there, then the explosion surely would have excited its attention.

We must have waited ten minutes or more for something to issue from the hole before a word was said.

"What on earth is that smell?" Willa suddenly exclaimed.

"Your nose is sharper than mine," said Roger. "I can't smell anything but dynamite and fuse powder."

"No, it's a different odor—like something dead or fermenting," Willa insisted.

"I can smell it now," I broke in. "We must have opened up a swamp or a sink-hole. But it isn't marsh gas or carbon dioxide as I was afraid it might be."

"Guess that dynamite was a bit too much for our friend of the depths," concluded Roger. "Let's go on into the hole. It's probably nothing but a lost coyote or a slimy lizard."

It became evident that we were not likely to solve the mystery by watching the hole. At our suggestion, Willa went back for the rest of the outfit, while Roger and I watched. That happy precaution of taking along all our equipment was the most favorable prognostic of that fateful incident, which we were later to recall with heartfelt thankfulness. A few minutes afterward I had poked my head-lamp into the hole and was reporting the way clear as I crawled in.

The cavity into which I climbed from Hamlet Hall was not very large and was considerably choked up with limestone formations. Hamlet Hall appeared to be a volcanicly sealed room in the very midst of a mass of carboniferous galleries. The floor was hard and showed no footprints; however, my lamp gleamed on several moist spots which seemed to have been left there recently by some animal's feet.

All three of us soon were exploring the chamber, but it was Roger, who was destined to discover the significant clue.

"Here's where it came from," he called to us.

He had found the opening of what appeared to be a natural shaft of limestone, which seemed to lead down to a deeper terrace of caverns. We were unable to see the bottom of the hole with our lamps, but it was evident that an extremely active creature with sharp claws could have climbed up the shaft with little difficulty.

I got out my plummet line and dropped it in. Sixty feet of line ran out before an obstruction was reached, and by swinging the weight back and forth on the string, I could tell that a large cavity was directly beneath us.

"You'll have to lower me on a rope," I said. "I'll keep my lamp focused below as I go down. If I'm attacked haul back for all you're worth. It's too close in there for a dynamite bomb; I'd only blow myself up, but I can use a rifle."

We soon made a turn around a near-by staltgmite, which would enable Roger and Willa to lower away slowly. After tying the line to my belt cable, I started down the shaft, the rifle pointed down with the rays of my lamp. It was an unpleasant experience, that slow descent into the depths of the mountain where we had reasonable proof that a dangerous form of life abided; but I reached the floor of a second cavern chamber without mishap, regaining my feet in silence like that of the grave. Overhead the rope stretched like a thread of silver up into the shaft, from the top of which Roger's head-lamp glared down like some monstrous, angry eye.

"You can send Willa down," I called up, after a brief observation. "The coast looks clear so far."

Willa came down the rope hand over hand, like a sailor, and Roger followed immediately on one strand of the doubled cable, which slipped around the stalagmite above as we payed out the free end. When we were all together again in the lower chamber, we cut the cable and left the two ends dangling in the shaft, awaiting our decision to return to Hamlet Hall.

Roger and Willa waited for me to suggest our next move, while they stared around at the ghostly shapes of limestone that stretched away into the darkness on every hand. Probably we were the first of humankind that ever had set foot in the place, albeit, life had undoubtedly been there before us.

"We have discovered an unmapped gallery of Comanche Cave, if nothing else," I explained, as much to myself as to Roger Anson and his daughter, my voice echoing about the walls like tinkling bells. "Unless we are mighty careful we are going to get lost. We'll have to snap ourselves together with the cables before we go on, and we'd better not unsnap the lines without definite prearrangement. We could lose one another and the way back to the shaft in five minutes if this gallery is as large as I think it is."

"How are we going to mark the back-trail?" asked Willa.

"I was coming to that," I said. "There are several ways of laying guide signs, but I think we'll have the best luck with stone cairns. We'll build up a pile of stones at every turn, each within easy view of another with the light we have."

"Do be careful," adjured Willa, as we snapped the cables into the rings at our belts; and I was sure that there was something more than impersonal solicitude in her shining eyes.

"Never worry," I promised. "If we're lost it won't be my fault."

With rifles ready for quick shooting, we started out, myself in the lead, Roger in the rear. The chamber diminished gradually to a long, steep passage not far from the shaft, and after building a trail guide at the top of the bank, we descended into a second gallery of passages. The whole formation in that vicinity appeared to be honeycombed with pits and fissures, and a blow of my alpenstock on the wall precipitated a score of tiny avalanches. Repeated pauses to listen revealed no sounds that could not have been caused by our voices and movements. Before we had gone very far we were inclined to think that whatever creature had made the sounds must dwell a considerable distance from Hamlet Hall, unless it was hidden in one of the smaller branch passages we were continually passing with glances askance.

"Strange the thing doesn't show up," muttered Roger, when we stopped at a general branching of the corridors to set up a marker. "Not even a peep out of it, and surely it was attracted by all that noise we made."

"The dynamite must have put a scare into it," I replied, as I piled up the marker.

At that moment, from the passage on the right, burst the most awful scream that I had ever heard in my life. My heart skipped a beat, and I know that Willa and Roger turned as pale as death. Before we could move, we heard a rattle of dislodged rubble off in the dark beyond the circle of our lamp-light, followed by sounds of something retreating—sounds like the scuffle and thump made by one walking in unfastened galoshes too large for him.

"Ah," I gulped, "I think our friend has made himself known."

Before I could interfere, Roger had flung up his rifle and had fired into the passage. The roar of the explosion was deafening, and again we heard the trickling of countless falling crystals.

"Something tells me I'm going to bag a dragon before I get out of this hole," mumbled Roger.

Though we listened several minutes after the shot we heard no more outcries from the animal, and the footsteps long since had died away in the darkness.

In silence I finished the marker on which I had been working, and we went on into the passage where the creature had retreated, advancing like hunters stalking a covey of quail. I soon noticed that the footing was no longer unyielding, and on looking down I was surprised to see the gleam of moisture under the rays of the head-lamp. We had struck a stratum of mud; somewhere near a water vein was seaping out under the rocks.

I had no sooner called the attention of Roger and Willa to the change in the floor of the passage when something in the mud brought me to my knees.

"The footprint!" was all I could say, as Roger and Willa bent with me.

Nor was there only one track in the spongy soil; ahead of us we made out the weirdest trail that modern man had ever laid eyes on. There before us, fresh in the bed of a passage hundreds of feet beneath the surface, were the impressions of the same foot that had left the evidence in Hamlet Hall—the footprint of a being that should have been dead for a million years.

"I can believe in dragons now," said Willa, when I was once more on my feet and gazing ahead into the blackness where the footprints led—blackness that we now were satisfied harbored a horror more terrible than the fabled Medusa.

"Are you sure you want to go on?" I turned grimly to Willa.

"Of course I do," she replied, indignantly. "Don't start any of your chivalry at this stage, Sir Bob. I'm going to see that monster if I never sleep again."

"Come on. Let's shoot us a dragon," urged Roger. "This wee bairn of mine has hunted lions and boa constrictors; I guess she can stand a bit of ancient history."

"Very well," I assented, drawing a deep breath, and testing the blaze of the cigar lighter which I carried to ignite the dynamite bombs.

We followed the footprints to a bend in the passage, where they disappeared into another shaft, which led down at a steep slant to the left. The pitch of the shaft was not sufficiently steep for effective use of the plummet, and our lamps could not light the bottom owing to a curve in the walls. A chip of stone tossed into the hole apparently bounded down out of hearing, testifying to considerable depth. Again I felt that it was my place to go in first, but the hole was rather small, and I would have great difficulty in protecting myself if I encountered our quarry in the passage.

"You'd better throw a stick of dynamite into that hole before you go in," advised Willa. "In fact, you're not going in until you do."

"I'm afraid of an avalanche," I objected. "These galleries don't seem to be any too solid. Most of the walls are just shells: If we should be cut off from Hamlet Hall by a cave-in it would be just too bad."

"How about a few rifle bullets?" suggested Roger.

"Yes, and take a chance on wounding it," I retorted. "I'd rather not irritate the thing more than can be helped. By the depth of its tracks it must be as large as a grizzly. I'll go in without any barrage, what do you say?"

"But there's no need of taking such a risk," exclaimed Willa, impatiently. "Surely a stick of dynamite isn't going to do much damage in a place of this size. Throw in a bomb. I'll be responsible if anything happens to us."

I laughed and turned to Roger. "Go ahead," he said. "Let our blood be upon a woman's head."

We walked back to a point nearly fifty yards from the hole where the roof and walls seemed fairly firm. Here I unsnapped my cable from Willa and advanced alone to the shaft with the dynamite bomb. According to previous tests, the short fuse would reach the cap in about five seconds, and even if I missed the hole I would be far enough away to escape the brunt of the explosion. For all my nervousness I made a lucky toss, and the hissing projectile dived squarely into the mouth of the shaft as I turned and ran toward Roger and Willa.

The concussion seemed to lift the very earth under my feet, flinging rock fragments with such force that they stung me through my heavy clothes. Particles of limestone and stalagmites were falling all around by the time I reached my companions.

"A good shot!" cried Roger, through the patter of falling fragments.

I was about to reply, when far away and behind, through the corridors of the terrace, sounded a thunderous crash, followed by a booming, blood-curdling roar. A heavy shock, as of an earthquake, then the roaring seemed to double and treble, rising to terrific volume, tearing toward us through the bowels of the earth. Knowing the significance of that sound, my stomach turned sick and my heart as cold as ice.

"Avalanche!" I screamed and leaped back the way we had come, through a storm of dust, dragging Roger and Willa with me as I resnapped my cable to them, scarcely aware of the precaution.

We got as far as the place where we had climbed down the steep bank to the second gallery below the shaft from Hamlet Hall. There we were brought up against a barrier of mangled stalactites, completely jamming the passage.

Willa's sharp scream expressed the terror that even the reckless Roger must have felt to the marrow of his bones. Our nervously sweeping head-lamps disclosed no sign of a passage through the ruin of tumbled walls, and, far and near, as we stood petrified with dread, we could hear the shock spreading as other galleries caved in with dull, resounding thunder. I became conscious that my knees were quivering as those of one who faces a firing squad with back to the wall.

"We're buried alive!" was the first intelligible sound any of us made, and that came from Willa. "And it's all my fault. I told you to do it."

The fear and self-condemnation in her voice steadied me wondrously. There could be worse deaths than being buried alive with Willa Anson, I suddenly decided.

"Well, there's nothing to be gained by losing our heads," I found myself saying with a calmness that amazed me. "There are other ways out of here besides the one we took to get in. And if we can't find a natural passage we have dynamite enough to blow up half the mountain."

"But it was Roger's cool humor in the face of danger that was the real sedative.

"Really, my children," he said, solemnly, "I feel that I already have enough training to sleep peacefully in any cemetery this side of the Styx."

CHAPTER VI

"THERE must be another shaft leading out of this gallery," Roger gave voice calmly to our mutual opinion after the landslides had settled and deep silence had fallen throughout the ruined caverns. "I think we ought to look for a natural passage before we use any more of that confounded dynamite. We might get ourselves into a pocket."

At that moment nothing could have influenced me to risk another explosion in such close and shaky quarters, and Willa had not yet ceased condemning herself for urging me to fire the bomb that had brought on the calamity. Grimly quiet and determined, we turned away from the clogged outlet, which once led to Hamlet Hall, and began a systematic survey of all the corridors. The creature of the footprints had assumed temporary unimportance in our greater danger, and though we kept a sharp watch for its possible return from the shaft, we were not so cautious in our advance as we had been before the catastrophe.

By a series of stone cairns, which we differentiated by chalk marks beside them, we checked off the passages as fast as we explored them. Time passed swiftly, and as we were unable to find an outlet our nervous tension increased. We located only one shaft that seemed to hold promise, but after nearly an hour's work in reaching the top of it, we found the way blocked by a dome of solid limestone.

At six o'clock we were back at the starting point of our long search, forced to admit that we were locked in, and that our only remaining means of reaching the upper galleries before night was by blasting, which in our grave extremities no longer seemed so dangerous. The explosion that had caused all our trouble seemed to have had a permanently quieting affect on the strange denizen of the mountain depths, for we had heard nothing more from it, nor seen anything but the dead-white walls and columns of what promised to be our mausoleum for many hours to come.

Resolved upon desperate measures, we again confronted the cave-in that blocked our retreat to Hamlet Hall. A thorough examination of the barrier and the stresses jamming it against the roof revealed little chance of blasting a hole large enough, or deep enough to let us through. However, in the hope that some miracle might happen, I made a step-ladder of stalagmite fragments and set to work energetically with the drill.

It was nearly eight o'clock before I finally fired the fuse, and we ran back to a previously arranged place of safety. The explosion did not cause any such catastrophe as before, since the weaker walls had already been leveled; it merely broke down a large portion of the roof, and after the dust had settled, we found that, instead of making an opening, we had only increased the height of the mass, which seemed slowly sliding toward us out of the upper gallery.

"The whole terrace around Hamlet Hall must have fallen in," I said in despair as I played my head-lamp over the glacial rampart of boulders. "Our blasting has only moved the avalanche a little farther into the passage. It's worse than it was before."

"Why can't we carry these boulders back into the other passages?" suggested Willa, who was showing admirable fortitude, considering the horror of our predicament.

"That might do as a last resort," Roger spoke up, mopping his brow as if striving to rid himself of some unpleasant illusion. "But I think we'd better try a few more shots in the highest chambers of this terrace. We may be able to break through to an upper room. Moving this landslide is a job of days not hours."

There seemed nothing better to do than to follow Roger's suggestion, since our dynamiting was not likely to get us into a worse position than it already had. At three other points in the gallery we proceeded to drill and blast, changing to the chambers above, we only precipitated huge cave-ins that plugged the chambers where the shots were made.

Heart-sick and exhausted, fast succumbing to that growing desperation which was overcoming us, so unfortunate as to be imprisoned underground, we returned once more to the barrier that barred us from the original passage to Hamlet Hall. We still had the recourse of clearing the passage by hand, but in our weakened condition the moving of such a mass of débris seemed impossible and attempts to do it appeared futile.

We sat down to rest in silence, unable to summon the spirit for any comforting optimism. It was then long past the time for our evening meal, but we had no stomachs for food, and no one mentioned it, though we drank sparingly from the canteen.

"There's no need of worrying yet," Roger finally mustered the courage to speak. "We've just begun. The air seems good in here, and we have plenty of provisions and water. Let's find a good place to spend the night and try to get some sleep. It will all look different in the morning."

I became aware that Willa was not listening, that she was staring off into the darkness to the right. My scalp prickled with instinctive fear, as she uttered a sudden exclamation and pointed into the dark. I could see nothing definite at first, but presently I distinguished a deeper blot of darkness near the bulge of the wall at the juncture of two corridors. Two globular eyes suddenly gleamed in the light of the head-lamps. Both Roger and I drew our pistols, but the shadow was gone before we could fire; and again, out of the distant corridors, came the odd flip-flop of strange feet, followed by a long, mournful wail and a burst of laughter somewhat like the cackle of a gigantic hen.

When we relaxed and holstered our pistols, I think we were all glad that the creature had again escaped, for in our condition we wanted only to be left alone.

"We don't seem to be in need of company," I observed, glumly.

"No, and somehow I seem to be glad that something is near us—now," murmured Willa. "I guess misery loves company."

"And if we can do nothing better we can follow it down the shaft," I rejoined, cheerfully. "It might lead us to a way out."

A little later we moved up the corridor to a wide, smooth ledge in the wall, where we would be well fortified against any attack during the night. After setting out a scanty lunch, which we ate with more appetite than we had expected, we drew lots, at Willa's insistance, to settle the order of the night watch. The first watch fell to Roger, the second to Willa and the last to me. I considered myself unfortunate in having nothing to do until late in the morning, for none of us expected to sleep much.

Strangely, we were not again visited by the phantom of the footprints all through the dragging hours of that unforgettable night. Unable to find an easy position on our hard beds, we slept but fitfully. It seemed that I had scarcely dozed off into troubled dreams, when Willa called me for the last watch, and I arose to take charge of the head-lamp at the edge of the ledge, my burning eyes adjusting themselves with difficulty to the dense gloom.

Breakfast was a funereal formality. Our nerves were raw-edged from the sleepless night and the comprehension that we might never reach the surface alive. We could scarcely conceal our anxiety when we began work on the barrier, dragging out the boulders and carrying them back into the other passages.

For five hours we stuck grimly to it, almost filling the passage with the rocks we carried back. Yet the barrier slid down and covered every hole we made, and it soon became obvious that we were only wasting energy.

A long rest and a sparing lunch at noon left us dragged out and haggard. We had no heart to continue the endless labor of the gallery in the hope that we had overlooked a shaft or corridor that would lead us to safety. Roger's lamp was beginning to show a waning battery, so we turned it out, proceeding with only my lamp. During that dreary afternoon we retraced every corridor and probed the most insignificant crevices, but no outlet did we find.

Again our watches revealed that night had fallen in the upper world, and too tired to talk rationally, we sought the security of the rock shelf where we had passed the first night. To preclude the need of light while we slept, we built a thick barrier of boulders, entirely enclosing the ledge, though a watch was maintained in the same order as before.

Nothing happened during the first two watches, but I had scarcely taken my post in my turn, when I heard a shuffling in the corridor outside the barricade. Willa had apparently fallen asleep immediately alongside Roger, and I did not call either of them.

Waiting tensely in the impenetrable gloom, my hand on the head-lamp switch, I heard the footsteps draw nearer, noting that there seemed to be at least two of the prowlers.

They came up cautiously to the barricade, while I gripped my pistol tightly for a shot between the boulders. Suddenly I pressed the switch of the head-lamp, flooding the ledge with light, as I peered through the interstices of the barrier. But I caught only a gleam of slimy skin and glassy eyes before the creatures leaped away and fled.

Relieved that a battle had been avoided, I turned out the head-lamp without disturbing Roger and Willa. From then on my mind was made up as to what we would do in the morning. We would follow the trail of the creatures down the shaft into the deeper recesses of the cave. Somehow, I felt that they would lead us to less forbidding regions, if not to a surface outlet.

When at breakfast I told Roger and Willa of my experience, and suggested that we look for a way out in the lower galleries instead of the upper, they assented eagerly. Like me, they felt that anything was better than wearing ourselves out in the unequal task of moving the masses of rock that lay between us and the upper galleries.

"It seems to be the last chance we have," said Roger, resignedly, as he carefully chewed the last morsel of his ration of crackers and cold meat. "It will be weeks before anyone attempts to rescue us from the outside. Pete will not find out for several days that we're lost, perhaps not for weeks. We should have arranged some scheme that would tell him something was wrong if we didn't show up after a certain length of time."

For the first time in forty-eight hours of underground imprisonment we evinced a mutual eagerness as we gathered up our equipment and started for the shaft which seemed to be the retreat of the strange beings who had played hide-and-seek with us for hours. I threw another stick of dynamite into the hole before entering it, risking its permanent closing; but no serious damage was done, and we were assured that no animal lurked in wait for us.

Closely followed by Willa and Roger, I led the way in. For several yards we were forced to slide feet first on our sides so small was the hole; but the walls rapidly separated and at length we were able to walk erect. Several times I thought I saw a grotesque figure running ahead of us just beyond the rays of my lamp, and I presently discovered that it was not all my imagination when we came upon fresh tracks in the patches of ooze that appeared here and there in the floor.

The unmistakeable scent of rotting vegetation was growing steadily stronger, when we reached a long, level stretch of bare granite. It was this smell which had attracted Willa's comment in Hamlet Hall. The walls of the passage, which had risen to a height of nearly a hundred feet, were no longer of limestone. Veins of chrysolite and feldspar gleamed in the light of my lamp, and all calcareous formations had disappeared.

"Do you feel that it's getting warmer?" Willa asked, suddenly.

"I thought it might be the exertion," I replied, glancing at her face.

I was surprised to see that she was beginning to perspire copiously. In the rear, Roger was mopping his face with his handkerchief, and when I passed a hand over my face it came away glistening with moisture.

"If it wasn't for these walls I'd say we were in an African jungle," burst out Roger. "The smell and the heat remind me of the Congo River Basin."

"The depth could account for the heat," I reasoned aloud, as we advanced into the gloom of the rapidly enlarging passage. "We must be several hundred feet under the surface of the earth, and we're going deeper with every step."

Our fatigue and anxiety prevented us from marvelling a great deal at the wonders of the vast abyss into which we were penetrating. Excepting the darkness, we had the impression of traversing the bottom of a deep river canyon. Our slightest movement was loudly amplified as to sound, and echoes persisted in resounding far ahead of us. So intent were we upon the footing, which was growing more and more slippery with slime and a kind of fungus, that we were not aware just when the darkness about us noticeably diminished.

"Surely we can't be approaching an outlet," panted Roger, who had rolled up his sleeves and unbuttoned his shirt to relieve the stifling heat.

"There's light somewhere ahead," I called back, too awed by the vastness of the black gorge to be overly impressed by the phenomenon of light at such a depth.

For several minutes we scrambled on down the steep way in silence, straining our eyes ahead into the steadily decreasing gloom. Behind, huge and distorted on the cavern wall, our shadows were growing less sharply outlined, while more and more clearly we could see the towering precipices of damp granite on either side. Then we sighted the first sign of a cause for the light. It was a glowing spot, seemingly high up on a curving wall ahead. The spot grew rapidly larger as we scrambled on, melting and shimmering within its boundaries like a huge coal fire. Another spot appeared to the right of the first, as we drew nearer, and then a long streak of yellow fire came slowly into view around the bend. By this time the great gorge of granite had become as light as a moonlit night on the surface, and I was thinking seriously of turning out the head-lamp to conserve the battery.

"Brimstone!" ejaculated Willa, whose keen sense of smell had detected an odor which had escaped Roger and I.

"Phosphorescence," I amended, panting as much from excitement as from the heat.

Directly under the source of the light we stopped, gazing up the steep escarpment of granite, to which the glowing patches clung far beyond our reach. Our sweat-bathed faces gleamed in the flickering light, as if we had been greased, our skin was a ghastly yellow color. Amazed, incredulous, we hastened on around a long curve in the underground canyon. A sharp bend to the right and another steep descent glowed up in the ghastly luminance of the phosphorescent deposits, which now were visible everywhere far above us. With the foot of the declivity in sight, we were brought to a sudden halt by a damp, warm breeze, blowing steadily out of the depths ahead, and bearing the pungent scents of an equatorial jungle, mingled with the unquestionable salty tang of the sea.

"God in heaven, what are we coming to!" cried Roger.

"Come," was all I could say, as I plunged on down the glimmering slope, greedily breathing the strange, refreshing breeze, with its odors of an alien, undreamable clime.

CHAPTER VII

We must have been more than a thousand feet under the surface of the earth when the inexplicable "sea breeze" sprang out of the abyss before us. The granite walls of the subterranean canyon had reached inestimatable heights, and the radium-like excretions on dome and escarpment, taking the shapes of miniature suns and veins of livid fire, produced a rapidly strengthening illumination, indescribably weird.

Overcome by wonder as to the source of the strangely scented air currents, we completely forgot our fatigue and the dangers that might threaten us in the haunts of the creatures, whose trails we had followed all the way from Hamlet Hall. Nor were we any longer perturbed by the idea of being imprisoned, for the fresh breeze on our faces and the spaciousness of the dimly lighted passage gave us a reassuring sense of freedom.

Still in the lead, my alpenstock striking up odd, clattering echoes with every step, I suddenly caught sight of something green and leafy that fairly took my breath away.

"What in the name of——" I stammered, stopping abruptly, then lunging forward, forgetting that Willa and Roger were tied to me and nearly upsetting both of them.

The object that had riveted my attention proved to be a cluster of ferns, growing in a soft spot near the outlet of a spring. It was an unusual variety, difficult to classify, and I could not help but refer it to an exceedingly ancient species. Astounded by the discovery of an advanced order of vegetation at such a depth, we all stared at the plant for some minutes, pressing the damp, rank fronds to ascertain their reality. There seemed something prenaturally alive about the plant, as if we confronted a reincarnation of the dead.

"It beats me," declared Roger, resignedly. "I never saw anything like this in the whole North Temperate Zone outside of a hot-house.

"Can it be an extinct variety?" marveled Willa.

"I've almost ceased to have any opinions," I replied, dumbfoundedly, as I examined the spongy carpet of algæ in which the fern was imbedded. "We can tell better after we've seen more of these plants, if there are any more."

Prepared for almost anything, we went on, picking our way around wide morasses of ooze, where the algæ grew several inches thick, undoubtedly hiding treacherous deeps of quicksand. Scarcely a hundred steps from the first plant we found several more in a slime-rimmed basin. It was stupefying. The earth seemed to have been turned partly inside out in some former epoch, preserving its primitive life-forms in a natural hot-house. Every leaf and stem of the strange growths revealed the coarseness and monstrosity of plant life in an age of steaming swamps and boiling mud, and all had that sickly green hue which is characteristic of vegetation under subdued light rays.

Springs clear and cold became more numerous, the morasses harder to cross or detour. Tiny streams ran hither and thither over the serrated floor, some crystal clear, others brownish red. At some points the water ran in and out of curious pores like miniature fumaroles*, and dipping our fingers in several of the pools that had accumulated in the deeper hollows, we found them tepid, several being unpleasantly heated, which was especially notable, since near by were rivulets as cold as ice. The remarkable vegetation rapidly thickened as we toiled on, while the breeze on our faces grew stronger and cooler.

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* An aperture in the earth in a volcanic region, whence steam or fumes issue.

We had scarcely ceased to marvel at the grotesque plant life and the variable temperature of the springs and pools, when we began to notice fleecy patches of mist floating in the vault overhead. At first we thought it might be smoke from distant lava, but we were speedily set to rights when we felt the chill of fine rain on our faces. The vapors above us were true clouds, all drifting with the wind from the point of evaporation, being reconverted into water upon striking the colder altitudes of the gorge.

The age of the plant life was unquestionably decided when in the middle of a shallow, luke-warm pool we came upon genuine cycad palm* nearly twenty feet tall. The rank, strong-smelling vegetation through which we tore our way was almost as old as the earth itself. Some freak of stratification had entombed a remnant of an ancient world.

From the spot where we discovered the cycad the way became exceedingly difficult, but though we were breathing heavily from overexertion and excitement, there was no thought of rest or of turning back. Ahead was the explanation of the mystery, or the deepest riddle of all—something so strange and terrible in our forevisionings that it drew us on with an irresistible fascination.

The vault of the gorge became a dome, hundreds of feet high, a veritable sky in the depths of the earth, its suns, moons and stars the mysterious incandescent masses that glowed and shimmered ceaselessly through the thickening canopies of mist. Behind us fell an intermittent drizzle of rain, before us loomed the gently weaving fronds of giant ferns and scythe-bladed palms, and always with increasing frequency we found the amphit-toed footprints of the living ignis fatuus that had lured us into the grandeur and horror of the nether world.

The end of the trail came suddenly when we panted out of a matted brake of ferns to a wide shelf, or plateau, of pitted granite. So vast was the gulf before us that our eyes were temporarily dazzled to blindness. We stopped as one, needing no signal for the concerted action, and as our eyes became accustomed to the fantastical mirages caused by the play of wavering light in the distance, we saw that we had reached the source of the rain-clouds and the breeze. Before us lay an inland sea whose extent we could not surmise—a sea for untold centuries locked away from the turbulent elements of the earth's surface by billions of tons of granite.

"Bob!" burst out Roger Anson, hoarsely. "Have I gone crazy?"

His voice seemed far away and insignificant. I am not sure what I mumbled in reply. I could not tear my eyes away from the marvelous panorama of undulating water, of cloud masses drifting steadily toward us, of a dome which was lost in distances too great for the human eye to encompass.

Queer, truncated islands, crowned with luxurious vegetation, loomed up in the midst of the deep. From somewhere on the left came the low booming of breakers, and I thought I distinguished a far-off sound like the trumpeting of an elephant.

We had come out of the gorge at the tip of a triangular bay, walled on the right and left by a dense jungle, which grew to the foot of the steep, rocky slope of the bench on which we stood, all permeated by the variable ramollescence of the luminous masses on the cliffs and in the stupendous sky-dome above the clouds. Here, I was certain, was the native fastness of those creatures, whose existence we had so far proved only by their footprints and weird cries.

"Look!" exclaimed Willa, suddenly. "In the middle of the bay!"

Before she ceased speaking I noticed an agitation in the water below us. Some ponderous body seemed to be coming up out of the depths. The waves were quieted over an area many yards in circumference, the water swirling and swelling strangely. With disconcerting abruptness a greenish brown mass, like a ridge of moss-covered boulders, broke the surface. I had hardly marked the uniformity of collosal spinal vertebræ when a massive, snakish head, with great jaws and eyes, shot up in a shower of spray on a neck like the body of a python. The creature could not possibly have seen us, yet it looked around with an apparently startled alertness, craning its neck over the water like a giant goose. It was the visible movement of a broad flipper alongside the base of the neck that informed me what species of monster we beheld. Before us, at a distance of only a few hundred yards was a living descendant of the sauronodon, monster denizen of the Mesozoic seas. We had indeed discovered an unturned leaf in the evolution of the earth.

While we watched, the great beast, half turtle, half fish, dipped its head and seized something in its jaws that resembled an eel. This it devoured leisurely, maintaining its position by the slow oscillation of its enormous flippers. Again it surveyed the jungle-walled shore with an odd intentness, before it slowly sank from sight like a submarine, leaving a welter of bubbles and foam in its wake.

I became aware that Willa's hand was clenched on my arm with a tightness that was almost painful.

"Bob, oh, Bob!" she broke out in despair.

I patted her hand without a correspondingly sympathetic feeling. I was too stunned to experience anything but awe and instinctive dread.

"We can take care of ourselves," I found myself saying with poorly simulated confidence, my voice choked and strained. "There'se nothing to fear—yet."

"Fear! I should say not," Roger burst out, vehemently. "Why, we've made the greatest discovery in the history of geology! We'll explore this lake, we'll find a way out, we'll open up the greatest wonderland of science ever known to mankind! Speaking of epochs——"

Roger's outburst was suddenly interrupted by a sound that broke out from the jungle below, a sound that silenced us as if icy hands had been clapped over our mouths. It was the voices of the nameless beings we had trailed from Hamlet Hall, and in the fastness of their homeland there seemed a menace in the cries that we had not perceived before. Again, an infantile babble grew louder and louder, to burst at length into peals of wild, unbridled laughter. We could not doubt now that more than one had sounded a challenge or a mockery. There must have been a score of the creatures hidden somewhere in the dense thickets at the foot of the slope.

When the bedlam had died away, seeming to scatter, as if the band had broken up, I turned to Roger.

"That is a more sincere answer than I can give," I said. "If we can carry the evidence of this buried world to the surface it will be as much of a miracle as the world itself."

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*A palm tree from several of whose kinds sago is prepared. A starchy product used as a food.

Nor did Roger attempt to protest against my pessimistic implications.

CHAPTER VIII

OUR reaction to the discovery of the underground sea was an overpowering weariness and hunger. The strain of suspense to which we had been strung ever since the landslide under Hamlet Hall, seemed suddenly to snap, leaving us so fagged out that we were temporarily unable to appreciate the lost wonderland to which the footprints had led. Dropping packs and alpenstocks, we sank down on the rocks, assured that we were far safer on the plateau than we would have been anywhere in the sinister jungle that stretched below us to the edge of the bay.

By the time we had recovered our breaths and had laid out a ration of food, it was nearly two o'clock, and Willa reminded us that we had been more than four hours reaching the underground sea. We were at least ten miles from any known outlet to Comanche Cave, and we agreed that if our memories were not in error, we had not seen the light of the sun for nearly three days. To me it seemed years instead of days, for so exaggerated was the passing of time underground that the real world had become misty and dreamlike.

Roger's high spirits were the first to respond to food and rest. While Willa and I still lay stretched out on the rocks in a semi-stupor, he began sweeping the subterranean landscape with a pair of small field glasses which he always carried in his jacket pocket.

"Come on, children," he urged, "don't let father be the life of the party. Here's a bit of drama that would interest old Homer himself."

"Leave me alone," groaned Willa. "I don't care if you find Circe out herding her swine. I'm tired."

I agreed with her by saying nothing, but Roger persisted in calling out his most important observations, and it was he who presently discovered an unexpected menace rapidly approaching from the dimly lighted firmament of the buried world.

"Get up, quick!" he shouted, bringing Willa and me to our feet in a tremor of dread.

"What is it!" I cried.

"Out there—this side of that cloud-bank—just over that big island. You can't miss it!" he directed, as he snatched up his rifle.

Willa had seized her rifle and I, a dynamite bomb before we finally discovered what had aroused Roger. The shadowy semblance of an enormous bird was flaping ponderously toward us out of the moving mists that enshrouded the sub-world deep.

"To the corridor!" I shouted, as we retreated.

Before the monster had come within rifle range we had gained the mouth of the passage by which we had reached the ledge, and with all of us hidden but our heads, peered out across the plateau, prepared to give battle if the monster attempted to enter our refuge.

The great bird-like creature must have spied us before we found cover, for it flew straight across the bay to the plateau, seeming to blot out the whole sky as it drew near. The tremendous spread of its wings was amazing and terrifying; their motion caused sudden puffs of air to fan our cheeks, while our nostrils were filled with a nauseous odor similar to that extended by almost all reptiles.

As the hideous bird or beast settled to the rock-shelf it resembled somewhat a giant bat, though the neck was long and the beak unquestionably bird-like. Obviously it intended to investigate the dunnage we had left behind in our haste.

"Don't shoot unless the thing attempts to destroy the packs," I begged, as I drew my pistol, reserving the dynamite bomb for an emergency.

"Get a bead on its breast," Roger exhorted. "There are no scales there. Fire when I give the word."

We took aim and waited.

With wings partly folded, like colossal umbrellas, the monster waddled on its clawed feet toward our packs, craning its long, scaly neck this way and that, as if looking for us. Its head was that of a crocodile with the exception of the bill, though the wings were skinny and webbed like a bat's. Part of the body was covered with scales and part with oddly mottled, sharp-pointed feathers.

The monster had opened its jaws over the camera, angrily scratching rocks and flexing its wings, before Roger gave the word and two rifles and a pistol crashed deafeningly in the silence. We could not have missed a vital organ at that distance, and the horrible croaking and thunderous flapping, which followed, revealed that the creature had been hard hit. The dust rolled up and pebbles scattered to right and left as the monster attempted to take flight, but in the end it fell back to the rocks, subsiding heavily, jaws opening and closing spasmodically.

After making certain that no others of its kind were in the sky, we stole out of hiding and advanced upon our kill, ready to fire again if it showed any signs of reawakening life. But the lizard-bird was as nearly stone dead as any reptile could be in so short a time.

"Looks to me like a pterodactyl," I announced as we began examining the carcass, whose muscles still were writhing and quivering under the scurfy skin.

"The thing is half lizard and half bird and all beast," said Roger, nervously. "Look at those claws. It could have picked up the three of us and pitched us into the sea."

Willa had not yet recovered speech so frightened had she been, and she made a show of holding me back as I bent to touch the revolting body.

Measuring the wings with a plummet line, I found them nearly thirty feet from tip to tip and more than fifteen feet wide at the longest of the bones, over which the webbed skin was stretched. On the fore edge of either wing, at the joint equivalent to one's elbow, was a monstrous claw whose single stroke would have been sufficient to have disemboweled a human being.

"A horrible thing," I faltered, passing a hand over a perspiring brow, when I had finished the examination. "It seems to be halfway between the European pterodactyl and the American archæopteryx. The teeth are those of a flesh-eating animal. We wouldn't have been a full meal for it."

"The stench is enough to kill," choked Willa, who was holding her nose.

Fearing that the carcass might attract the hostilities of other similar air-dragons, we dragged it with great labor into the mouth of the gorge, where it could not be seen from the sky. Afterward, at Roger's suggestion, I got the camera and took what I hoped was a fairly clear photograph of the creature, though I was uncertain just how to adjust the shutters for the phenomenal light.

Back on the rock-shelf, thoroughly aroused to the danger that threatened from sky, sea and land, we held a brief conference, deciding to go on immediately and attempt to encircle the underground sea. Forewarned of the monsters we would doubtless encounter, and armed so well, we felt that we could protect ourselves against any of the clumsy denizens of the cave-world, and it was evident that if we were to find an outlet leading to the surface before our food supply was exhausted, we must lose no time. Raw food was of course to be obtained, yet we neither knew whether it was agreeable to us, nor whether we could find an edible variety when we needed it.

Shouldering our packs once more, we climbed over the edge of the rock-shelf and entered the strip of jungle between us and the bay. No sooner had the giant ferns closed behind us than the breeze was shut off completely, and we found ourselves choking and gasping in a welter of torrid heat, which was made even more insufferable by the odors of rotting vegetation and carrion. Eyes half-blinded by perspiration, unable to see a yard ahead because of the dense undergrowth, we would have been seriously handicapped had we been attacked; but it was only a short distance through the tangle and we made it without mishap, greatly relieved when the sea breeze once more cooled our dripping brows.

A narrow strip of salt-white beach bordered the water's edge, over which small waves rippled in with a low, rustling noise. The sound of distant surf was more clearly audible from the beach, rising somewhere in the north, or what we believed to be the north. The islands, which we had seen during our first observations, seemed much farther away from the water level, and we were appalled to see that the bay was but an insignificant part of a body of water several miles in extent. That the water really was salt we soon proved by touching it to our tongues. It was as bitter as the Dead Sea; only the absence of sunlight could have kept it from becoming deadly poison during the ages it had stood in this great tomb.

"Here are our friends the footprints again," said Roger, bending on one knee and examining some impressions in the wet, white sand. "Looks as if they'd walked right into the water this time, or jumped in."

"They must be made by the same ones that we heard in the jungle when we came out of the canyon," said Willa, as we joined Roger over his find.

"They're fresh enough," I agreed. "And the webs indicate that they spend a lot of time in the water, though they seem to breathe air." I glanced back at the dark, frowning front of the jungle. I was beginning to feel the instinctive alertness of primitive man in his early environment, and I could see that both Willa and Roger were inclined to look over their shoulders frequently.

Anticipating a good view of the creatures who had so successfully eluded us thus far, we set out along the beach to the left. Ahead, the jungle extended far out into the water on what appeared to be a spit or cape, forming a long curve on the beach. Around this we marched, alert for danger from the jungle or the deep water, and not forgetting the sky. Far to the east we saw three shadows against the liminous dome, which we thought were pterodactyls, but they did not come near us. Once a huge fish dived out of the water not far from shore, falling back in a shower of spray and startling us.

The thunder of breakers grew suddenly louder, and we were not surprised when upon rounding the point of land, we raised a magnificent display of surf. Less than a half mile ahead of us great waves were rolling in over a rocky bed, bursting in green-tinged fountains and geysers against a wall of weather-worn rock. Between us and the surf were several acres of level beach, strewn with driftwood and large shells. But it was the glaring ribs of a bleached skeleton as large as a ship which most attracted us, and hastening on, we found the bones to be those of a sea-monster which must have been thrown up on the beach during a storm or upheaval at sea.

We were about to begin digging the sand away from the skull the better to classify it, when we sighted several strange figures issuing from the jungle. While we watched with rifles at our shoulders, they came down to the beach between us and the breakers. Though there were at least a dozen of them, they seemed much afraid of us, for they stayed crowded together. Evidently, only an overpowering curiosity, together with the surety of a safe retreat, had impelled them to approach us in the open. Something in the attitude of the animals gave me the impression of men; we were like aliens from two worlds, meeting for the first time.

"If they aren't the varmints that have been playing hide-and-seek with us, then I'm a red-headed Chinaman," declared Roger in an undertone.

"There's something human about them," whispered Willa. "Don't you see how knowing they are. Look, one of them is even whispering to another."

The impression of their likeness to men was unavoidable, and was even more accentuated when the group stopped in close formation, the ones on the outside trying to wriggle to the center. Yet they were physically similar to gigantic amphibs, standing on their hind legs. Their arms were short and apparently of little use, but their legs were long, bowed at the knees and very sinewy, almost snakily so, obviously developed for rapid swimming, since there was a finlike appendage outside the calves, like a half fish tail. The abdomen was round and protuberant and of a light gray color, while their large, upturned mouths hid the bulbous eyes completely except when they moved their heads from side to side to see better.

"Hello!" I shouted, waving my arms, as an experiment.

My voice and gestures had immediate results. The creatures began to confer among themselves, or so it seemed, making outlandish gestures with their pudgy arms, and chattering volubly. Since they had evinced no hostile intent, and we had no doubt that we could blow the whole band to pieces with rifles and dynamite, we moved a little nearer, until we were able to hear the noises they made above the rumble of the surf. It was like a bevy of school girls tittering over some amusing secret. Had the beasts not been so hideous I should have laughed aloud.

"Amphibs," whispered Willa, as we stopped again, lest we frighten them into flight, for they had already began to edge nearer the water.

We could now see that their backs were a brownish-green, mottled with black spots, which together with the light colored bellies, gave them an even more remarkable resemblance to giant amphibs. Now and again, one of them drew a deep breath and distended his throat like a chameleon. The slapping noise which had so mystified us a few hours before was sounded several times, apparently made by air suction in their throats.

I waved my arms again, inciting another break of tittering. Then one of the largest of the group, the smallest of which seemed somewhat taller than the average man, moved toward us a little way and began to shuffle his feet in a peculiar kind of dance, while the others watched intently, cocking their heads from side to side. The fins on the dancer's feet caused an odd flopping sound—the same which we had heard in the cave just before the landslide.

"The fiend must be trying to enchant us," whispered Roger, as the strange foot movements continued. "Don't that remind you of an African medicine man?"

"It's so human, and yet not human," gasped Willa. "What can it mean?"

"They have intelligence," I rejoined. "Maybe more than we can guess. Look at that fellow dance, will you?"

"It may be some form of greeting," Willa suggested.

Then Roger spoiled the fun by firing his rifle into the air. The dancer stopped as if the bullet had struck him, and with a suddenness that took us completely by surprise, the whole group leaped into the air, soaring in graceful arcs far out over the water into which they plunged with scarcely a splash.

"Now you've done it," I said, disappointedly, as we watched for them to come up.

"Oh, we'll see more of them," he replied, confidently. "I just wanted to let 'em know that it wouldn't pay to get too familiar."

For several minutes we watched the waves before we saw the dark heads pop up several hundred yards from shore. They bobbed up and down for some time, riding the waves easily and undoubtedly watching us. Then Roger fired another shot over their heads and they all disappeared.

A brief examination of their footprints revealed no shadow of doubt that the creatures were the same as we had heard in the passages under Hamlet Hall. We deduced that some of the more adventurous of the beings must have been in the habit of wandering up the gorge and climbing through the shaft to the terrace of caves under Hamlet Hall. There they had by chance overheard the voices of an exploring party, which had incited them to return again and again in an effort to solve the mystery, until at last they had lured three surface-people to the sunken wonderland.

We had started on down the beach toward the line of breakers when, with a suddenness that completely demoralized us, the whole jungle on the left seemed to fly to pieces. A chorus of bloodcurdling shrieks and howls broke out as if a horde of maddened savages was on the war-path. Before we could say Jack Robinson the beach was darkened by hundreds of amphibs, all leaping and screaming as if they had gone crazy.

Roger's rifle cracked rapidly and my pistol began to spit lead, I having fumbled and dropped the dynamite bomb unlighted. Willa had gone into action with her rifle before we became aware that the creatures were not attacking us at all. They were running past us into the sea. The first group must have been merely a scouting party, and now the main body, terrorized by the report of Roger's rifle, were in full flight from the cover of the jungle where they doubtless had considered themselves in a tight place.

For seconds the beach was jammed with hurtling bodies as the amphibs dived into the sea. But as suddenly as they appeared, the last of them vanished under water, swimming off to join the others. While we looked about us stupidly, scarcely comprehending that we had come through the mêlee unscathed, and somewhat uncertain as to exactly what had happened, we saw that one of the frog men had failed to escape. He was lying motionless in the sand, not far away. One of our wild shots had reached a living mark.

CHAPTER IX

HAD the amphibs showed their teeth instead of their heels we probably would have abandoned our investigation of the sunken world then and there. As it was, we felt sure that we had given the man-beasts a terrible fright, and that henceforth they must either be inclined to respectful friendliness, or so shy that we would see no more of them, at least in dangerous proximity.

Scores of queer, bullet-shaped heads were bobbing about on the waves north of the beach when we approached the slain frog-man. How much the creatures could see of us and our actions at that distance we could not be certain, but we hoped they would not find out what we had done, granting they could not have observed the death of their fellow during their wild flight into the sea.

"If anything could make them dangerous enemies this will do it," said Willa, anxiously, as we bent over the body.

"We can bury it in the sand," I replied. "If they don't already know what happened they may never find out."

There was little to be seen on the body that we had not already noted during our first close observation of the creatures. The skin was of a viscous, rubbery-nature common to life-forms which pass a great deal of time in the water; but on opening the jaws we were vastly relieved to find the flat, dull teeth of the vegetable eater. At least, we need have no great fear of their hungering for our flesh; though as Roger said, many vegetable eaters had an appetite for particularly tender flesh. Under other circumstances I might have undertaken a dissection of the amphib, if only to determine the size and intricacy of the brain; but knowing how greatly outnumbered we were, nothing could have tempted me to molest the body, and especially in sight of those on watch from the sea.

Roger had unfastened the spade from his pack and was starting to dig in the sand when I interfered.

"They are watching us," I cautioned him. "Wait till I see if I can't scare them away with another shot."

"I thought of that," he returned, "but I've already wasted too much ammunition."

However, since we had so far used almost none of the ammunition for the pistols, I raised mine and fired out over the water in the direction of the heads. The bullet skipped from wave to wave, while the echoes reverberated, and nearly all of the heads ducked under. But several bolder ones refused to submerge, even after a second shot, which was all I felt we could spare for such a purpose. Unable to frighten away the remainder, we proceeded to dig the grave, half convinced that our caution was needless anyway, that the amphibs would never summon the courage to attack us no matter how we provoked them.

It was but the work of a moment to roll the body into the shallow trench which we had scooped out and cover it with sand and gravel. We were careful to scatter the top layer so that no mound would be visible, and if the amphibs returned to see what we had been doing, they would have some difficulty in discovering that one of them had been buried there.

"This will be a good test of their intelligence," said Roger, as we finished camouflaging the grave, dropping some shells here and there for good measure. "We'll come back later and see if they have found the body."

"And supposing they do find it?" pressed Willa. "Would that mean anything?"

Roger laughed uncomfortably. "Maybe not; I hope not."

I shrugged as he looked at me strangely, and I think we all became unpleasantly conscious that, for all the spaciousness of the sub-world, we still were prisoners—prisoners in the very hunting grounds of half-ape, half-reptile savages, whose real nature and potentialities were as yet unknown to us.

A few amphibs still were visible on the long, smooth waves south of the breakers, when we left the grave. But by the time we had reached the first of the huge boulders above the line of surf, they had all disappeared. Our last observation from a high ledge revealed no sign of life within the perspective of the naked eye, save a dark object on the horizon, which we thought was a sauronodon, up to breathe from its hunting in the deep. Roger declared that with the aid of his field glasses he had seen several amphibs climb ashore on a heavily wooded island about half a mile out to sea, but the movements of the palm leaves brushing the water might have deceived him in the dim light. Nevertheless, the idea that the creatures might live on the islands was interesting, and only after considerable discussion did we decide to leave the mysteries of the amphibs for some future time, having already meddled with them more than we thought had been prudent.

The roar of the surf had grown so loud by this time that we could not converse without shouting. As we clambered on over the slippery rocks through mists of spray, we could see that the granite cliffs on the left had receded so far from the seashore that we could not have seen the mouth of an outlet had there been one in the neighborhood; moreover, the palms and pinites of the primeval jungle were so tall and rank that the base of the walls was completely hidden. It was difficult to believe that the cloud-blown sky was made of stone, that the apparently illimitable stretches of the sea where bounded by colossal towers of granite not many miles apart. The air continued to be good, though the breeze had changed direction and was bearing the odorous vapors of distant ooze-beds, instead of the freshening spindrift from the deep water. We discerned no definite fluctuation in the light shed by the glowing masses on dome and walls, and we were certain that darkness never came in this land of changeless age, a phenomenon for which we were devoutly thankful.

Not far along the rocks overlooking the surf we stumbled into the rookery of countless, batlike creatures, which flew up in swarms out of the numerous crevices about us. We were almost literally smothered for a moment. We had to stop and beat them off before we could see our way ahead. So curious and stupid were they that they alighted on our shoulders and heads like cow-birds on the backs of cows. I caught one with little trouble, finding the unmistakeable traces of the reptile in toothed beak and spiny tail, thus further substantiating our proof that we had discovered a preserved remnant of a primeval period.

It required fully an hour of difficult climbing to reach the end of the rocky strip of coastland. When the thunder of the surf had become somewhat subdued behind us we came to the continuation of the level beach and sat down to rest on the edge of a high bank, overlooking the juncture of the jungle and the beach. On the left the great forests of prehistoric vegetation covered a series of natural terraces clear to the hazy cliffs of granite, and, had it not been for the vastitude of water on our right, we would have believed ourselves marooned in the midst of an ocean of tropical verdure.

We had been surveying the wild landscape for some time before I discovered a movement which did not seem to be due to the air currents. What appeared to be the trunk of a malformed palm tree was weaving this way and that, independent of the general oscillation of leaves and branches. Now and again it stopped dead-still while the boughs near by continued to sway and nod.

"Here's something for your glasses," I called to Roger. "See that queer looking tree trunk near the foot of that terrace—just this side of the big conifer with the naked limb.

He followed my directions immediately, while I turned my eyes away to rest them for another look.

"Mighty funny looking tree trunk," reported Roger a moment later. "If it's a tree the branches are hidden in the foliage of a giant fern, which doesn't seem according to Hoyle. You take the glasses, Bob; my eyes are beginning to blur."

Willa also had become interested in our find, and she was watching it intently while I focussed the glasses. I had not looked for a second before I knew positively that the object was not a tree trunk. It began to bend near the top with a snakish resilience, drawing in upon itself meanwhile like a huge serpent. Before I was quite prepared for so sudden a disclosure, an enormous head appeared on the upper end of the moving trunk—a head that was looking straight at me over the intervening fern-fronds, so close through the glasses that it seemed in reach of me with its huge, V-shaped jaws from which dangled masses of vegetation.

My exclamation as I snatched the glasses from my eyes was not needed to apprise Willa and Roger that we had discovered another fearsome denizen of the cave-world. The moment the head was drawn back out of the foliage, where the beast had been feeding, the neck no longer was deceiving as to its genre of life.

"A dinosaur!" ejaculated Willa.

"Looks like a giant, hairless giraffe!" cried Roger. "By heaven, I believe the beast has discovered us!"

My own comment was never spoken, for at that instant, while our attention was centered on the distant head and neck, a loud crashing broke out from the trees below the bank, followed by the ripping and tearing of vines and ferns by ponderous feet. As we stared at the suddenly agitated treetops, a huge, horny head rose out of the thickets, so far from the ground that it seemed suspended on invisible wires. A prodigious neck followed the head into view, shooting up and down and around as the monster examined the vicinity. A pair of short, front legs with four digits, carried kangaroo fashion, became visible as the beast reached the shorter undergrowth. So long and massive was the body that it seemed it would never be drawn into full view, and only our high perch on the rocks, which placed us a little above the reptile's eyes, gave us courage to stand fast and satisfy our curiosity.

"Dynamite is the only weapon that will phase that fellow," Roger choked out.

Our rifles had indeed shrunk to the insignificance of toy air-guns as I made ready to throw a bomb. This time I was determined not to fumble as I had during the encounter with the fleeing amphibs.

But there seemed no immediate need for self-defense, and I had no intention of opening hostilities with the giant. Flexing its gigantic hind legs, it hopped sluggishly out of the dense undergrowth into the slough of catkins directly below us, dragging its tremendous, tapering tail. There was no question now as to what we confronted: this was a giant dinosaur, lord of the Mesozoic ferns; yet we made no move to retreat, for its stupidity and clumsiness were patent before we had watched it a minute.

Though the monster seemed vaguely aware of alien beings near at hand, probably by sense of smell, its vision must have been so imperfect that it could not distinguish us from the mossy boulders that composed our background. It kept on shooting its head this way and that on the long neck, occasionally dipping its nose to the ground exploratively, a movement requiring considerable time owing to the great height of the beast, which must have been more than forty feet. Several raucous gutturals were emitted, somewhat like the grunting of a pig many times amplified. Then it suddenly reared on its powerful hind legs, using its tail as a brace, and towering even above the rocks on which we stood.

"Wait," I called to Willa as she drew back. "It can't reach us here unless it starts to climb. Then I'll throw a bomb."

"Stay and get a good look at it," seconded Roger, "It's as stupid as a sheep. Anyway, Bob can blow its head off with the dynamite if it starts trouble."

Willa had scarcely calmed down and resumed her position between us, when the dinosaur turned its head in our direction and opened its jaws. It must have at last located us, for it immediately faced back toward the jungle, as if excited in its dull way. Drawing a deep breath, that distended the scaly flanks, it sounded a prolonged, nasal roar, the identical sound I had heard in the distance a few hours before, and which I had likened to the trumpeting of an elephant.

We looked off in the direction in which we had sighted the first dinosaur. It was in motion now, coming toward us as if in answer to the call of its fellow or mate. Presently, the farther one sounded an answering bellow, the noise of its movements growing rapidly louder. Then Roger's sharp outcry warned us that the bellowing of the dinosaurs had awakened response in an unexpected and more dangerous quarter. Momentarily paralyzed by what we saw, as we followed Roger's wildly gesturing arms, we drew back from the edge of the bank beyond which the dinosaurs were coming together. Two pterodactyls were flapping out of the clouds from the east, having evidently sprung from a hidden roost on one of the distant islands.

"Let's crawl into one of these crevices!" cried Roger, as we looked for a hiding place. "It's too late to run; they might see us."

Two huge boulders lay close together not far from the bank, and between these we crowded, hurting ourselves in our frantic haste. So narrow and deep was the fissure that the pterodactyls would be unable to reach us on account of their size, while at the same time they would be at the mercy of our rifles and the dynamite. Furthermore, we could see all that happened without moving.

During our maneuver for safety the second dinosaur had emerged from the trees and joined its fellow in the catkin brake. Both of them must have discovered the pterodactyls too late to avoid a clash with them, or else they were eager to do battle. At any rate, to our great relief, the pterodactyls discovered the dinosaurs and headed for them as they glided down out of the sky, like two fantastical monoplanes.

The sudden outbreak of screeching and roaring that followed was almost as terrifying as if we had been the prey. The thunderous beat of wings and the thump and jar of ponderous feet merged with the outcries in a fearful bedlam as the reptile "birds" dived to battle with the dinosaurs. Great teeth gleamed and gnashed, rending horny flesh, while ghastly talons raked and clutched. The monsters must have been deadly race-enemies, so furiously did they set upon one another. For seconds we could see almost nothing because of the enshrouding wings of the pterodactyls, but it soon became evident that the dinosaurs were being worsted in spite of their greater weight and firm footing.

A pterodactyl seized one of the dinosaurs on either side of the spine with its great talons, endeavoring to keep it from escaping into the trees by threshing its powerful wings. The other dinosaur succeeded in escaping to the cover of the tall trees, where its adversary was handicapped owing to the interference of the branches with its wing action. Then the two pterodactyls concentrated on the dinosaur still in the open, and it looked as if tragedy would end the terrible duel. But the dinosaur, sorely beset and tearing up brush and sod with its clawing feet, slowly succeeded in dragging itself and its combatants into the trees.

Long after the last dinosaur had crawled into the forest the pterodactyls kept at it, trying to lift the body in their talons. But they were forced to withdraw when one of them became dangerously entangled in the trees, not escaping before the dinosaur had torn away a large piece of one wing. When the pterodactyls at last soared up over the jungle, screaming horribly, their talons were dripping with gore and the stench of enraged reptiles was nauseating.

"Speaking of battles," said Roger, as we crawled out of the crevice and surveyed the trampled, bloody undergrowth. "Did you ever dream of anything like it? They make mad lions look like playful kittens."

"Listen!" cried Willa, suddenly.

As we fell silent, watching the jungle where it weaved and crackled about the body of the wounded dinosaur, the sounds that had attracted Willa were borne clearly to our ears, undoubtedly coming from the vanquished reptile giant. The cries were strangely like the moans of human wounded on a battlefield, and considering the size and ferocity of the reptile, its plaints were unusually piteous and doleful.

"It's going back to its mate," hazarded Willa, presently, and she was not the only one who sympathized with the dinosaurs, for we had come to detest and fear the fiendish pterodactyls.

As soon as we were certain that the monsters were all too far away to be recalled by our movements, we climbed down from the bank and skirted the curving fringe of the jungle to the beach. But we did not go far before weariness once more asserted itself, and we made camp in the middle of a particularly broad expanse of level sand, where there was no cover to assist an enemy in stalking us.

The great quantities of driftwood, most of which was tinder-dry, enabled us to build a fire, the first we had had in many hours, and though we had no need of either light or warmth, the crackle of the blaze was the most invigorating influence we had felt since the accident had imprisoned us. The fire was comforting reassurance that a civilized world still existed somewhere above the dire atavisms of an inhuman age, and Willa even spread her hands over the blaze and shivered, though the temperature was well above eighty degrees. Squatting Indian fashion around our campfire, we talked ourselves out of the deep horror that had been hanging over us ever since the battle of the giants.

It was our luck that before we had been in camp half an hour we heard a noise at the edge of the jungle, and on investigating cautiously, discovered several reptiles no larger than deer, which we classified as a small species of herbivorous dinosauria. The scent of smoke from our fire seemed to have attracted them. We shot one of the harmless reptiles, determined to test the edibility of the meat then and there and decide our chances of surviving in the underground world after our provisions ran out.

A few minutes later we were roasting disosaur steaks over a bed of glowing coals, perspiring somewhat, but enjoying the savory scent of the fresh meat and hoping it would taste as good as it smelled.

The meat proved to be palatable, and even appetizing for one who liked sea foods especially well. To me it tasted like sea-turtle, and Roger and Willa likened it to iguana steak, which they had eaten on one of their hunting trips in the tropics.

"We needn't worry about meat if these dwarf dinosaurs are plentiful," was Roger's cheery prediction after we had eaten our fills for the first time since the catastrophe that had entombed us. "We could live here the rest of our lives if necessary."

Willa and I exchanged meaningful glances at what her father had innocently suggested. I felt my heart leap as I realized that Willa and I had been brought much nearer by our misfortunes. Here beyond the reaches of civilization and all it connotated, the Anson riches seemed a misty, inconsequential barrier, and I knew that, if I stayed much longer in the tomb of lost ages, I would be unable to contain myself, no matter how I might contend that adversity was no fair ally of a lover.

CHAPTER X

THE strangeness of our first night in the sunken world was hardly appreciable by us collectively. Overstrained nerves had finally succumbed to the need for sleep; and at nine o'clock of the cave-world's endless twilight, Willa and I sought beds in the sand, leaving Roger to pace the beach alone in the usual order of the watch, which Willa insisted we maintain without favoring her in the least.

Lest we attract more formidable wanderers than the dwarf dinosaurs, we extinguished the fire, thankful that there would be no darkness to complicate the dangers of the situation. We still were unanimously agreed that the beach was the safest place for us, inasmuch as it would permit the use of eyes, weapons and legs to best advantage; and as long as one of us was on the alert, we would have ample notice of an attack from the land, the sea or the sky.

Shortly after midnight, at the beginning of Willa's watch, the report of her rifle brought me quivering out of deep sleep, though Roger was not aroused from the coma into which he had fallen after his tiring vigil. Leaping to my feet and seizing a dynamite bomb, I saw that a gigantic lizard had come out of the jungle west of the camp and was investigating us with a slowly wagging head. Facing it determinedly, like Ariel before Caliban, stood Willa with her rifle.

I did not stop to awaken Roger, but ran past Willa, lighted a bomb and threw it at the monster's head. The explosion enveloped the beast in a great cloud of sand, but it did not seem to have a serious effect. I was about to throw another bomb in desperation, when the mountainous lump of flesh suddenly turned and lumbered away up the beach, having survived a shock that would have felled an elephant. I judged the monster must have been nearly a hundred feet long, including the enormous tail, and the tracks it left in the sand were as large and deep as rifle pits. I believed it to be a brontosaurus, one of the largest species of dinosauria, which used all four feet in locomotion, and had a broad, round-nosed head like a newt, and legs similar to an elephant's.

Willa and I were staring after the creature, unable to credit our good fortune, when Roger came panting up, the explosion having jarred him awake. He was just in time to see the brontosaurus turn off into the jungle in its cumbersome flight.

"I'd hate to meet that fellow when he was hungry," I observed, my ears ringing from the concussion of the dynamite.

Willa still was pale from the ordeal, and it was plain that for all her uncommon courage, she was beginning to weaken under the strain.

"You'd better let Bob finish your watch," advised Roger.

But Willa held obdurately to her resolution to play the part of a man and a brave one.

"Go back to sleep, you flowers of knighthood," she bade us, imperiously. "I'm not a bit more frightened than either of you would have been in my shoes. What did I come on this wild goose chase for, if it wasn't to be thrilled? I'm taking my medicine and liking it."

Roger promptly left the field to me, and as I promptly surrendered, leaving Willa mistress of the situation. Secretly I admired her spirit, but I knew better than to flatter her. Making a shift at going back to sleep, I lay awake in the sand, listening to Willa Anson's nervous steps as she paced her post, and wondering what further hazards the future held in store for the one who was dearer than life to me. It never entered my mind that we might not survive our misfortunes and return to the upper world. My love for Willa brooked no hint of pessimism. I would sleep no more that night, I resolved, while still Willa must think she was standing her watch alone. I think I was debating whether I should get up and talk to her, pleading insomnia, when I fell fast asleep, knowing no more until I was awakened at three o'clock to go on watch.

"All's well," reported Willa, triumphantly. "And look who's responsible."

Gazing up at her in the foggy aftermath of sleep, it was on the tip of my tongue to say that I warmly desired to be responsible for her the rest of my life, but instead I responded with an inane: "I hope I can do as well."

She yanked my cap down over my eyes, murmuring something like "old sober sides" and promptly fitted herself into the hollow I had shaped in the sand, waving good night with a slim, brown hand. Even so trifling an expression of growing familiarity was too much for one of my rarely ruffled sentiments, and, when I took my post, I was stumbling about like one drunken. I had a wild, inexplicable impulse to beat my breast and challenge all the giants of the sub-world to mortal combat; but fortunately my ecstasy quickly gave way to cold ponderings of ways and means of escaping from the poisonous wonderland where love promised to bloom beyond the pale of clergymen and licenses.

I had been on watch nearly an hour when, facing the jungle, I heard a light splash near the beach. On turning quickly, I was startled to see three amphibs floating on the waves not a hundred yards from shore. Standing very still, I observed that they were backstroking slowly to keep from drifting in. It seemed impossible that they could have come here by coincidence; there was something undeniably sinister in their coming. As an experiment, I raised the rifle, which Willa had turned over to me, and aimed at them. To my astonishment they ducked under immediately, coming up farther out and a long distance apart. Again I raised the rifle; again they ducked instantly, with alarmingly canny foresight. They had learned the meaning of firearms without doubt. The idea that they had been watching us for hours from farther out to sea, or from one of the islands, was still more disconcerting; but I managed to shake off my forebodings as imaginary, and when the amphibs came up a third time I did not attempt to scare them with the rifle.

As soon as Roger awakened, shortly after six o'clock, he being a confirmed early riser, I pointed out the amphib spies, whose round, protruding eyes still were fixed intently on us as they drifted about with idly stroking legs.

"Ah, the plot thickens!" exclaimed Roger, after I had explained the amphibs' reaction to the threat of the rifle. "The first move we make to-day is back to that grave. If they've dug up the body we can bank on having trouble with them. Their fear of the rifle might not mean much; they may merely remember the noise after that first scare we gave them, but if they bury their own dead, watch out. The only mammal that does that is man."

That the amphibs were a mongrel species of anthropoids, evolved during the million years the cave-world had been sealed in the abyss, was a disquieting conclusion to say the least, yet the evidence seemed to warrant it. Nevertheless, we ignored the spies for the present, thinking it best to show them that we had no fear.

We started another fire far enough from Willa so that she would not be disturbed, and set about broiling a large part of the disosaur meat to replenish our portable larder. While we perspired over the blaze, turning the skewers, Roger broached the subject of further transportation, outlining a scheme that had been hatching in his mind for some time. It was that we build a raft out of the light, tough wood which had accumulated along the seashore, using our jackets and haversacks for a sail, and homemade oars when the wind failed.

"We can cover far more of the coast from the sea than we can from land, and do it in half the time," he contended. "And if we're going to get out of here any time soon we've got to do some tall hustling. Seems to me the chances are mighty slim of a rescuing party reaching us for months at least. When they find that cave-in in Hamlet Hall they'll give us up for dead most likely. I'll bet, that right now Pete is still expecting us to show up of our own accord. He'll make several trips over the ridge, before he suspects that something is wrong. We'll be here weeks before any effort is made to dig us out, and maybe they'll never try."

"In short, it's just about up to us whether we ever get out alive," I summarized, facing the facts squarely. "One thing is certain, it will be a tremendous engineering feat to open a shaft from Hamlet Hall to the route we took to get here. For all we know Hamlet Hall may have collapsed its entire length, and they'll have to sink a score of shafts before they find the last guide cairn, unless we are able to communicate with them through the walls."

"Well, we can count on Ed Struthers anyway," Roger cheered me. "He'll understand what happened as soon as he hears we're missing. Van Mar will be right with him, too. Neither of them will stop until we're found dead or alive. Ye gods, if they only knew what that confounded footprint led us into!"

And so we decided to build a ship and go down to the sea.

Willa still was asleep when we removed boots and socks, rolled up our trouser legs and went to work, dragging the drift logs into the shallow water and lashing them together on stout cross-pieces with the extra cable we carried. Our chopping with the camp-axe awakened Willa, who was highly enthusiastic when she found out what we were doing.

With Willa lending a clever hand, we soon finished the combined deck and keel of our clusmy craft. I had served an apprenticeship in the navy years before and was not wholly ignorant of sailing vessels, while Roger had been a coastwise yachtsman; nevertheless, we were temporarily stumped when it came to stepping a mast with the tools we had. It was Willa who achieved the happy suggestion that we lash a timber under the raft as a rest for the mast butt when it was seated in the hole we had cut through the deck. Thus we set up the pole, roughly tapered and braced with short timbers, secured by wooden pegs set in holes bored with the dynamite drill.

When we had guyed the mast to all four corners of the raft, using the last of our cable, it withstood all the strain we could bring to bear on it, and we were satisfied that nothing short of a hurricane could swamp our ship.

The three amphibians were still watching us when we ate a late lunch. They had scarcely changed their position all morning. But the success of our sea-going venture had begun to bulk larger in our horizon than did the strange beings of the sub-world, and as soon as we rested we went to work on the sail.

A boom was provided by a long, tough, barked sapling. Between this and the mast we stretched our patchwork canvas. When the sail was furled, we had a craft resembling a poverty-stricken fisherman's smack, whose seaworthiness was as yet a dubious probability. Then the offshore wind filled the sail as the boom was pushed around, and we raised a cheer, as our handiwork started out to sea, not stopping until we had come head to wind and tied up to a stake. The lightness of the logs, which resembled cork and rode very high in the water, explained the bouyancy of the raft, and eager to try it out in actual sailing, we hastily piled our dunnage aboard and poled out to sea through the shallow water, where Willa dashed a sea-shell of water over the prow, christening our boat the *Rambler,* with our hasty sanction.

"Sail ho!" sang out Roger, when the wind filled our makeshift canvas and our ponderous craft began to move without the help of oars.

"And no Davy Jones' locker if it doesn't sail," I heard Willa mutter while I adjusted the boom for the full benefit of the breeze.

Using an oar for a rudder, Roger in charge of the helm and Willa acting as lookout, we sailed out to sea in fairly good form, though the raft frequently sloughed away from the wind for lack of a proper keel, proving the aptness of its name, the *Rambler.* I doubt if the amphibs had ever laid eyes on such a monstrosity of an aquatic as was our raft, and when we wallowed past them they all submerged, swimming off a great distance before they came up again.

Half a mile off shore, thrilled by the unexpected maneuverability and stability of the raft, we squared away for the point of land where we had buried the amphib the day before, a fair wind astern and high hopes in our breasts.

CHAPTER XI

"THREE knots an hour!" Roger cried out, jubilantly, as we wallowed past a group of small islands.

He did not explain how he had arrived at his exaggerated estimate of our sailing speed, but I deemed it a shrewd guess. A strong northerly current had picked us up near the islands, sweeping the raft along at an increasing rate, with the help of the sail, and we could not have wished for a more favorable setting forth on our strange cruise of the inland deep.

Shortly after leaving the islands astern a wave broke over us, but its temperature was so warm we were not much discomfited, and the equipment had been securely wrapped for just such an occurrence. It was while we were adjusting the helm and sail, to avoid further inundation, that Willa reported a sea-monster swimming toward us from the west, supposedly a saurianodon. Willa was using the field glasses, and what she had seen was invisible to Roger and me nevertheless, we made ready for trouble, she seeing the rapidity with which the beast was traveling. However, I had no sooner cut dry fuses for several sticks of dynamite than Willa relieved the tension, with the news that the monster had turned off south and was foaming across the waves at a great rate, having apparently not discovered us, or else had sighted more attractive prey.

In less than half an hour we raised the line of surf that we had passed on foot the day before. Standing well out to sea, in order to avoid a possible wreck on the rocks being caught in the breakers, we bore down on the point of land where we had buried the amphib. The peril of the surf was scarcely passed before Willa sang out that she had sighted the skeleton of the sea monster near which we had buried the body.

"I can see something moving near the grave," she said, tensely. "Looks like several of those little dinosaurs."

"Any amphibs in sight?" asked Roger.

"Not near the grave," she replied, after a moment, "but there are some dark objects on the water just this side of the beach. They may be heads. Yes, they are heads! Amphibs, too. One just showed up out of the water like a tortoise. Now they've all ducked under."

I lost interest temporarily in Willa's observations upon discovering that the current, which had been aiding us thus far, now threatened to carry the raft clear around the point where we intended to land. Luffing as sharply as possible without drifting awash, I took in sail and lashed the boom and set to work with an oar. With Roger lending a hand, we worked like Trojans for several minutes of suspense before we finally pulled out of the strongest grip of the current, and once more felt the raft respond to the trimming of the sail, now spread again, as we stood in for the beach.

"The grave has been tampered with sure enough," Willa's outcry startled us as we rocked and floundered on the rough water near shore. "I can see heaps of sand on the very spot where we buried the body."

The animals seen from a distance proved to be dwarf dinosaurs, as Willa had surmised, but they had all disappeared into the jungle by the time we ran the raft aground in the shallow water a hundred yards or so from the grave. We no longer required glasses to see that something had been digging in the beach, and after ascertaining that no enemy lurked in the vicinity, I took off my boots and waded ashore. The condition of the grave had suddenly assumed a significance out of all proportion to the facts, because it had been so long weighing on our minds.

Hoping that nothing more intelligent than a carnivorous reptile had pillaged the grave, I hastened down the beach toward the heaps of sand, watching the jungle, while Roger and Willa covered my advance with the rifles. A gaping, empty pit greeted my searching eyes, when I came upon the scene of the digging; nor was there so much as a knob of bone or a bit of skin to testify to a flesh-eating grave-robber. Clearly defined in the sand around the excavation were the tracks of numerous amphibs; even to their pudgy hand-prints on the walls of the pit and in the heaps of sand.

My solemn mien as I walked back toward the raft, dismayed by the evidence of the intelligences we had to contend with, must have conveyed the worst to Roger and Willa, for when I waded out and climbed aboard they did not ask any pertinent questions.

"So it's war amphibs from now on," Roger spoke, conclusively. "But we're lucky to find out what to expect from the vermin. Now we can at least handle them as we would human savages, which means with gloves. Heigh-ho, what's this!"

Willa had drawn back with a gasp, staring at the water in a direction to which our backs were turned.

"Amphibs!" she cried, as we whirled about.

"Where?" I cried, unable at first to see anything but waves.

"Under water!" she cried back "Hundreds of them—like shadows. There, one of them just darted away to the left."

Then I did see, and Roger also—a terrifying sight. Scores of amphibs, dimly visible in the translucent water, like a school of giant fishes, were idling in the shallows. They hovered there like a swarm of avenging water spirits, and I scarcely knew what I was doing, when I lighted a dynamite bomb and threw it wildly into the water.

The explosion drenched us with a tremendous fountain of brine and sea-bottom, and when the last shower had settled I counted eight amphibs lying belly up and drifting in with the ground swells. The rest had dived off into deeper waters, or were recovering their senses in odd contortions of their hideous bodies.

"What did you do that for?" Roger exclaimed, accusingly, when we had recovered from the slightly stunning effects of the explosion.

"I don't know," I replied, uncertainly. "It was a sort of panic on my part. Anyway, we gave them a lesson they won't soon forget."

"I'm glad you did it," Willa defended my impulsive act. "We don't know what those unearthly creatures were planning. They might have dragged us off the raft and—" her voice trailed off in a murmur of horror at the vision she had conjured of what the frog-men might have done with us.

Willa's terror was enough to arouse me to the grave chances we were taking.

"I'm in favor of leaving the raft here and now while we are able to leave it," I announced. "What's more, I think we had better return to the galleries under Hamlet Hall. We can wait there for help from the outside a lot easier than we can cope with these half reptile savages. This is no place for a—" I was about to say 'a woman,' but changed it to 'human being.'"

But Willa promptly took Roger's objections out of his mouth.

"You're afraid because of me, Bob!" she accused me, disgustedly. "I won't stand for it. We're going to explore this cavity. I'll not go a step back to Hamlet Hall until we know there isn't a way out here."

Cheerfully resigned for better or worse, I gave over to the Ansons and helped pole out to sea. At least I had one favorable prognostic to tie my faith to: my dynamite bomb had taught the creatures that our weapons were as effective under water as above; henceforth, they would be more careful how they approached the raft.

Getting the full benefit of the deep water current, we made still better time around the point of land, and were scudding quite merrily across the neck of the bay from the head of which we had discovered the underground sea, when with a suddenness that drove us into a brief panic, three pterodactyls flapped up from the plateau at the mouth of the passage where we had entered the sunken world. The monsters must have been investigating the body of the one we had dragged out of sight, though not out of smell.

"Let the raft drift," shouted Roger, seizing his rifle. "Here's where we give these scavengers a warm reception. Take one at a time, and if they swoop all together, go over the side. We can swim ashore if we have to.'

We gathered in the center of the raft, legs braced to the pitching of the waves, as we awaited the attack of the lizard birds. They had spied us without a doubt, and were circling higher over the bay, preparing to swoop down on the raft. As long as they were in the air, my dynamite bombs would be almost useless, and so I drew my pistol to help out the rifles.

Uttering a grating screech, the foremost pterodactyl began to circle down, jaws open, showing its jagged teeth. At Roger's cool command, with the bird not two hundred yards away, we fired in unison at the gigantic breast. The monster screamed horribly, swerved in a steep dive and pitched head foremost into the sea, its great wings beating the waves to foam and awakening a thunder-like cannonade.

The crash of our guns and the falling of the first pterodactyl caused the others to hesitate. Our second volley, fired at a greater distance, was not so effective as the first; yet we had again centered our shots on the nearest bird, wounding it seriously. Wheeling low over the water, the laboring monster flew dangerously close to the raft, and we gave it another volley as it veered away. The third and last, seeing the one floating helplessly on the sea and the other flapping weakly away, circled higher, and at length flew off into the northeast, leaving victory to us.

"That ought to hold them for a while," exulted Roger. "Speaking of big game, what a tale this will be!"

"If we live to tell it," corrected Willa "—or dare to tell it."

Once more at our posts as helmsman, deck-watch and lookout, we sailed away from the bay, but not before we had been horrified to see the dead pterodactyl dragged down into the deeps by some monster lurking there. The idea of the raft being similarly pulled down occurred to us, but we could depend on the logs deceiving the creatures into believing the *Rambler* was driftwood.

We sailed for nearly two hours in a southeasterly direction, hugging the seashore so that we could swim to land if capsized. The walls of the vast dome revealed no passages important enough to demand investigation by land, until at four o'clock we crossed the southern end of the underground sea, bringing the northeasterly curve of the shore athwart us. The jungle was somewhat sparser here, the littoral zone being mainly composed of fallen rocks and tons of washed-up sand. So close were the walls to the water that on several occasions we sailed within a furlong of them. The discovery of a large cavern mouth above the jungle came almost at the same time that the wind began to drive us into the land in our inability to tack against it.

"What do you say to tying up and having a look into that passage?" suggested Roger. "The canteen is about empty anyway. We'll have to fill up with fresh water."

I well remember that no amphibs were in sight when we moored the raft to a half-buried drift log. Nevertheless, we carried our equipment with us, even to the camera and both head-lamps, for we could not risk having it destroyed or carried away by the cunning creatures.

The cavern that had lured us in proved a disappointment. After leading us back about a quarter of a mile into dense darkness, it rapidly diminished to a crevice so narrow that we could not squeeze through. But we found spring water in abundance, and also a miniature rainstorm before we returned to the twilight of the cave-world and the inland sea.

On breaking out of the thicket just above the spot where we had moored the *Rambler,* we were startled to see a dozen or so amphibs leap off the bank into the sea. Hurrying down to the raft, we found that we had returned none too soon; the mooring rope had been chewed half through. Had we been a moment later, we divined that our precious transport would have have been putting to sea under the power of alien hands and webbed legs.

Climbing aboard again, we furled the sail and began poling along in the shallows against the wind, rowing or paddling when we could not touch bottom. We were on the point of tying up again and camping for the night when the wind suddenly fell to fitful gusts, and in a few moments sprang up stronger out of the southeast. Again we set the sail and stood out to sea, drifting farther and farther from shore in spite of our efforts to keep a straight course. By six o'clock we had raised a large group of islands, and on drawing near them in search of a good place to land for the night, or the period of rest, we were attracted by some queer formations looming through the ferns and cycads that grew densely down to the water's edge.

"They look like ant-hills," remarked Roger, as we drew in the sail and rowed up to the shore.

Between the drooping palm leaves we found the mouth of a tiny cove, and into this we poled the raft, delighted to find a kind of lagoon, about a furlong wide and twice as long. Tying up to the bank, after an extensive observation of the dark vegetation, we set out to investigate what we had seen from the sea.

Not fifty steps from the lagoon we came upon an odd looking mound of dried mud, the surface of which seemed to have been smoothed by a water finish. Walking around it cautiously, we were further interested when we found no sign of an entrance. I was about to strike the wall with the axe when Roger called our attention to another similar mound not a dozen feet from the first, half hidden by a thorny thicket of unnameable weeds. In the space of five minutes we located a dozen of the mounds, varying from about five feet in diameter to a gigantic edifice more than twenty feet high and forty feet in diameter. And augmenting the sinister oddity of the mounds was the cemeterial desolation of the jungle. We did not find so much as a worm or a snail alive, and the few tracks here and there were far from recent.

"Looks like Goldsmith's 'Deserted Village' doctored up by Edgar Allen Poe," said Roger facetiously.

"Seems more like a grave yard to me," rejoined Willa. "What do you suppose is inside of them?"

"I think we can find out easily enough," I said.

There was no stemming our curiosity once we had succumbed to the lure of an unsolved mystery. Half-convinced that the mounds were either ant hills or graves, we attacked a small one with pick and axe. The walls were hard and thick, built as if by giant wasps, but within a few minutes we reached an inner cavity. The moment we broke through, a fetid gas rushed out, almost strangling us before we could back away.

"Smells like sulphuretted hydrogen and something else," I said, when I had recovered from a fit of coughing. "We couldn't stand much of that in a close place."

But the gas dissipated quickly in the fresh air, and we cautiously set about enlarging the hole in the wall. After breaking down a third of the mound, we found that it was merely the roof of a large pit, half filled with sea water. Using the head-lamp in the dark chamber, I discovered a low tunnel, partly submerged, which led away in the direction of the lagoon.

Thrusting my alpenstock into the pit, I succeeded in touching bottom, and it was while poking about with the staff that I encountered an obstruction of some kind. Hoping to clear up the mystery of the mounds, and assured that the gas was no longer strong enough to be fatal or distressing, I dropped down to a ledge of mud and stones, which had been built just above the water line. What I brought up from the water after several minutes' fishing was the skull of an amphib. I threw this out for Roger and Willa to examine and presently discovered that an entire skeleton was submerged at the bottom of the pit. Extending the investigation to the lateral tunnel, I found a second skeleton, lying with head toward the pit.

"Could this be a cemetery of the amphibs?" Willa asked when I had climbed out of the pit.

"It might be," I said. "But if so, they haven't seemed very careful how they laid away the bodies. And why all the space for one or two bodies? Then there is that mud-shelf around the walls; it looks to me like some kind of bed. I found traces of rotted leaves and sea weed, which could have been used for food or comfort."

"I'll tell you what," broke in Roger, "these mounds once were dwellings of the creatures."

"Once?" interpolated Willa. "But they wouldn't leave dead bodies in their houses."

"Of course not," hastened Roger. "They abandoned the dwellings for some reason—that gas for instance. It might have killed a lot of them before they found out it was forming. Those that escaped with their lives never came back, and they were forced to leave their dead behind. That skeleton in the tunnel might be the remains of one that tried to reach the bodies after the disaster."

Roger's explanation sounded as plausible as any, and after we had broken into another mound and found three more skeletons—these lodged together in the water as if they had died embraced—we were sure that the deadly gases generated in the close chambers and passages, had either destroyed all the inhabitants, or had driven away the few that had escaped alive.

The ledges built about the water line proved with reasonable certainty to be the beds on which the amphibs had slept, close to their cherished sea water and safe from the monsters of sky, land and sea. The hive-like roofs seemed to be for protection against the pterodactyls, or else from high winds and storms, which were possible in a cavity so large as to produce varying air currents. Through the tunnels, or sunken runways, the creatures could have reached the lagoon without exposing themselves, while no sea monster large enough to devour them could follow them into the homes.

We decided that the smaller mounds were the private dwellings, and the large central edifice a sort of assembly room where all could congregate in perfect security. On exploring further, we came upon a circular plaza paved with hard-packed mud, and just beginning to be overrun by vegetation. Recalling the queer dancing of one of the frog-men, we guessed that the paving was a kind of open air theater, or ceremonial area. Deep circles had been drawn in the mud before it had dried, and the space, inside several of these designs, was deeply worn as if from the shuffling of countless feet over a long period of time.

Enthralled by the mystery of the deserted city, we had started back to the raft, when Willa dropped behind to adjust a pack-strap. Her piercing scream brought us sharply about. She was staring into the jungle on the right, as if beholding a ghost. As Roger and I ran back to her side, the cackling laughter of amphibs, fleeing through the bushes, gave us a chill of dread. While we stood listening, we heard a number of bodies strike the water on the west side of the island. While we were engrossed in investigating the mounds, the creatures must have stolen up out of the sea, from which they were following our every movement.

"Two of them were so close I though they were going to touch me," Willa laughed off her scare. "And their big mouths seemed to be grinning as if they knew how frightened I was going to be when I saw them."

Though I did not speak of it aloud, I suddenly was seized with a dire suspicion. Were the amphibs more interested in Willa than in Roger and me? While we rowed out of the lagoon and into the sea, looking for a less gruesome site for a night camp, I still was conjuring fearful, though I hoped groundless, visions of the future.

CHAPTER XII

WE passed the second night on a tiny islet more than a mile from the deserted city of the amphibs. In the certainty that we had humanlike intelligences to deal with, we confidently expected an effort at retaliation for the deadly dynamiting at the beach, if not for the chance rifle shot; but, with the raft pulled up on a rocky shoal, and the watch kept as usual, the amphibs did nothing more than maintain an incessant vigil from a safe distance to sea. I think we would all have preferred even lethal action to the suspense of waiting, which only augmented our forebodings as to the arch cunning of the reptile men.

Toward morning, during the latter half of my watch, the air currents of the cave world were suddenly whipped to a frenzy by some abrupt variation of the upper temperatures, which I was unable to account for. Such a wind-storm I had never heard of; it lashed and bellowed at our island camp as if a berserk Poseidon* were trying to blow us into the earth. The mountainous waves thundered from every direction, sometimes standing almost straight up in a momentary calm, only to be smashed and torn to sprindrift the next minute by a cyclonic buffet from the storm-king. Fortunately, I had furled our precious sail firmly to the boom, else it would have been torn to ribbons in the first few minutes of the subterranean tempest.

After nearly an hour of incredible hurricane the wind suddenly abated and a deep, depressing calm settled over the lurching sea. Driven from their beds at the beginning of the storm, Roger and Willa joined me on the island beach, as I surveyed the infuriated deep, and we were unanimous in thanking our lucky stars that we had not been at sea during the blow.

There could be no more sleep for any one after the fearful violence of the storm. We breakfasted early, and in wait for the waves to die down, set to work improving the *Rambler* by building a gunwale all around and designing a larger, more effective steering gear. Also we contrived wide outriggers to increase the stability of what we now termed our "junk," not only because it resembled the Chinese craft by that name, but because it partook of the industry of small boys, who had had access to a city dumping ground.

The storm had more serious results than the breaking in on our scheduled hours of rest. Before the waves had quieted a gigantic sea-monster, somewhat like a manatee, was thrown up on the island. Though seriously injured, it still was sufficiently alive to be dangerous, and let it smash our raft and us also in its cyclopean death throes, I threw a dynamite bomb into its cavernous jaws. We had no sooner recovered from the gruesome experience with the sea-monster when three amphibs were washed ashore—sad evidence of what had ostensibly happened to the quota of spies which had been caught by the hurricane during their surveillance of our night camp.

Shortly after noon the sea had calmed sufficiently for us to risk the launching of the raft, and though the breeze that sprang up was not in the direction we desired, we started out, tacking as best we could, with the help of the oars, and making slow progress northward along the eastern shore.

On the lookout with the glasses, Willa reported several amphibs swimming in our wake, just beyond rifle range as usual. Later, two of them made so bold as to come up under the raft. But the moment they meant to interfere with our sailing we guessed what was wrong. Firing several shots from the pistols through the interstices between the deck-logs, we killed one and frightened the other away. To say that we accomplished this with any calmness or bold strategy would be to credit us with more fortitude than we possessed. Then and there, we had another spirited argument as to whether it was wise to go on. Again I was overwhelmed in my percautionary contentions by the stubborn determination of Roger and Willa. Ordinarily it should have been the other way around—but I was not at heart an adventurer—a fact which explained why I had pondered over books and magnifying glasses, while Roger Anson and his daughter had sought big game in Africa.

Late that afternoon the capricious wind changed again in our favor, and over a sea preternaturally calm, we sailed past endless, primeval woodlands between the sea and the cliffs, finding no passages meriting a landing, and sighting numerous dinosaurs of various species, also a large eel, or sea-serpent, which writhed perilously near the raft, but submerged the instant I set off a stick of dynamite near its head.

At five o'clock the temperature had become noticeably warmer—a sort of muggy, depressive heat, signifying unusually high humidity. We discovered that we were passing through numerous belts of tepid water like miniature Gulf Streams. Peculiar streamers of vapor appeared ahead of us, vanishing as we neared them like fantastical mirages. The dome of the cave-world gradually became lower, until we could distinguish the internal movements of the luminous masses which cast their ghastly radiance over the sunken sea. Though the wind held fair behind us, it became distressingly hot, the clouds disappearing entirely, the atmosphere was charged with steamy moisture, which drifted back the way we had come to the colder altitudes where it was transformed into visible vapor.

A distant hissing at length attracted our attention, which we were unable to explain or locate. Roger held that it was a geyser, and for want of a better theory Willa and I agreed with him.

The realization that we were approaching the northern extremity of the sunken sea drove from our minds all thought of time and appetite. At six o'clock we still were wallowing northward, our only reason for knowing the time being the method we used of estimating the distance we had gone, by multiplying speed and time sailed, which though extremely inaccurate, was better than nothing, since it gave us a sense of mastery over our strange ship and the stranger waters we cruised through.

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* The Greek name of the god of the sea, Neptune.

Warning of red-hot matter not far ahead came with the increasing prevalence of heated currents in the sea. The cold belts became as rare as the warm had been, and at many points one could not hold a hand long under water without having it painfully heated. What we had first heard as a faint sibilation had grown to a deep roaring as of escaping steam, interspersed with a prodigious gurgling. Now and again, as we sailed on, masses of air bubbles burst out of the water around us, splashing hands and face with stinging hot drops. Somewhere below, we divined, the sea floor was boiling hot, and we were fast nearing the source of the terrific heat.

The distance between the eastern and western walls had rapidly diminished until both banks were clearly visible, when we perceived, far ahead through the twilight glow, a reddish glare that spanned the whole northwestern horizon. Gargantuan shapes of white, flushed with crimson, appeared and disappeared against the rubescent background, constantly changing, casting monstrous shadows over the sea and the surrounding walls. Accompanied as they were by the roar of steam, we soon recognized the phenomena as columns of steam shooting up from the sea.

All vegetation had disappeared from the shores by this time, only the barren rocks and wave-sediment sloping down from the beetling ramparts of granite. Needless to say, we long since had passed the barrier for living beings; no aquatic life could have existed in the steaming deep or found sustenance for support on the sterile, baking shores. And though we well knew what danger we were sailing into, we were so fascinated by the terrible abyss that we could not turn back. Here were the grand and awful wonders of the earth's core, rising before us out of the steaming sea, like a materialized Dantean phantasm. Our lives and all life seemed but trifling mechanisms before this evidence of what had slept beneath us for untold centuries.

"Volcano!" cried Villa from her post with the field glasses on the framework bracing the mast.

"Shall we go back?" I asked from my cramped position in the bow, wiping the perspiration from my face in handfuls.

"No; go on," she urged. "I think I can see the northern end of the sea, or else a narrow strait. There are caverns just above the water line—scores of them. They must be old lava vents."

The play of the steam jets in the northwest became more clearly discernible, while the explosive sounds of boiling water forced us to shout when we spoke, which was rarely. A vast lake, or crater, of molten lava appeared to lie just above and beyond the edge of the sea in the northwest. Rivulets of flame spilled over the rim, or spurted out in slight convulsions, causing the eruptions of steam, while the deeper emanations of heat threw up the bubbles that sucked and crackled everywhere. The eastern walls, which we had been following closely, now revealed unmistakable signs of volanic action. We passed several small craters, apparently extinct, whose rims came down to the water's edge. The wind having fallen to fitful gusts and the evulsions of boiling water became so violent as to be unendurable, we ran the raft aground on the slope of a craterlet, and after mooring it to a boulder, proceeded on foot along the rims of the craters on the eastern shore.

We were unable to estimate the depths of the chasms we passed, nor did I stop to use the plummet, for I divined my line was not long enough to reach bottom of the least of them.

Skirting a maze of fumaroles that bulged out into the sea to the left, we came at length to a crater of enormous extent, whose mouth might have swallowed the whole of the sunken sea had the seaward rim been broken through deeply enough. Pausing on the edge of this gloomy pit, we gazed fascinatedly into the shadows. I felt a panicky desire to plunge head foremost into the depths, and my morbid impulse must have been shared by Roger and Willa, for we all started on hurriedly without speaking.

Picking our way along the vitreous banks of the craters, we mentioned the possibility of a convulsion opening the natural dikes and emptying the sea into the crater maws. The mere imagination of such a cataclysm was appalling. Then the rounding of a bluff brought us into view of the northern walls of the sea, and we paused in mute marvel at the weirdly beautiful scene. Far to our left, in a variegated curve, the cliffs leaned like towers of Pisa toward the cave-dome, their massive, adamant fronts flickering eerily in the gaseous glare of the volcano. Swaying to and fro, falling, eddying, spraying, the vast shadows of the geysers overcast the water and the walls with pantomime of demon shades, all dancing to the stertorian symphony of rushing steam and boiling water.

"The door of Hades," muttered Roger, huskily, glancing back at the abyss we had just passed. "I wouldn't be surprised to see Charon rowing up to ferry us over to the devil."

But the caverns, or lava vents, honeycombing the cliffs just ahead, soon drew us on. At last we felt we were on the track of an outlet leading to some mountain crevice or little known surface cavern, and we even looked forward hopefully to an underground stream which by some far-fetched chance might empty into the deep canyon of a Grand River tributary.

Entering one of the largest caverns, we advanced beyond the reach of the dim light of the cave-world, climbing steadily downward, until our headlamps revealed a sudden drop into darkness. The chasm proved too wide to leap and there was no way around it. Forced to turn back, we tried another passage farther on. Again the way led downward a short distance, and again we were brought up at the brink of a precipice which seemed the same that had stopped us in our first venture. But a third passage, chosen at considerable distance from the luckless ones, led upward gradually for several hundred yards; and after crossing numerous tiny streams, some warm, some icy cold, we came to a slow-flowing underground river, which was large enough to have been navigable by our raft if we had had it with us. However, we had no intention of hazarding a voyage into the blackness of the unknown river channel, until we were satisfied that none of the passages led directly to the surface.

Overcome at last by weariness and hunger, we returned to the raft, resolved to continue our investigations of the fumaroles next day. Owing to the heat and our fatigue, we abandoned the tedious task of rowing the raft out of the hot water, and tied up again, going on foot to a point where the sea-breeze once more blew cool and fresh from the unheated waters to the south. Though we had left our ship a half hour's walk behind, we had no fear of the amphibs tampering with it; the hot water prevented them from approaching it by sea, while we would be on watch if an attempt was made to advance by the narrow strip of coast land under the cliffs.

For two days ensuing we searched the volcanic passages for an outlet without success, yet we were not unduely disheartened; there were many passages still to be explored, and the dinosaur meat, combined with a fairly palatable root located in the jungle, would keep us well nourished for an indefinite period.

On the seventh day after entering the cave-world, we decided to return to the landslide under Hamlet Hall and ascertain whether any efforts were being made to rescue us, which we hoped to detect by the sounds of drills or blasting. Without mishap, we made the voyage back to the southern walls of the inland deep. Under the plateau, where we had shot the first pterodactyl, we hauled our raft with its bow out of the water. There was little more we could do to protect it from the amphibs, who we doubted would not meddle with it before we returned, if, indeed, we ever returned. However, we took down the sail and divided the component parts into their original personal utilities.

In high spirits we set out up the gorge, and hours later came to the spot where we had climbed down out of the clogged gallery. To our horror we found that another cave-in had buried the shaft completely. Dynamiting desperately, we wasted three sticks of our diminishing supply of explosives, only to prove conclusively that we could never get out of the gorge.

Not until the crushed body of an amphib was uncovered by the blasting did we suspect that there had been foul play. From then on we were certain that the reptile men had had something to do with our last and greatest misfortune.

CHAPTER XIII

EARLY the day after the discovery of the buried shaft we retraced our steps through the underground gorge to the abyss of forgotten ages, resolved to find a way to the surface through the caverns at the northern end of the sea, or die trying. As we had anticipated, the *Rambler* was nowhere to be seen when we came out of the jungle on the spot where we had left it. Nor was there any doubt as to the perpetrators of the mischief. Everywhere in the sand were the tracks of the enemies, deep and dragged out where they had pushed and hauled the heavy craft into the water.

But we had little trouble in locating the missing raft. Proceeding northward along the beach, we sighted it, aground in the breakers near which we first had encountered the amphibs. Willa and I volunteered to get the raft off the rocks, since we were the most active in the water, and after a perilous half hour of battling the surf, we succeeded. Beaching the *Rambler*, we found it had been very little damaged by the buffeting of the combers, and we were not long in making the necessary repairs.

Once more afloat in the twilight mists of the inland deep, we flattered ourselves that we had again outwitted the cunning enemies by salvaging the raft, which we believed they had turned loose in the breakers to prevent our recovering it. But when a dozen of them popped out of the waves just out of rifle range as usual, we did not feel so jubilant, for there was something undeniably sinister in their ceaseless vigilance and repeated attempts to frustrate our plans. What with an unfavorable wind, against which we wallowed close-hauled if we may call it so, for hours with scarcely any northing, it was a thoroughly miserable trio of castaways that finally headed into a group of islands for the night.

It was while looking for a suitable stretch of beach on which to ground the *Rambler* that we made a disturbing discovery. One of the largest islands was the site of the amphibs' village. Through the giant palms and catkins we made out several, low, gray mounds similar to those of the deserted city explored several days before. And this time we felt certain that the mounds would be found inhabited had we cared to investigate, but we did not; on the contrary, we passed by several good landing places near the island village before beaching the *Rambler*.

At supper the talk was all of the caverns in the north and our hope of finding an outlet there. Even the nearness of the island village was not sufficient to arouse any real fear of the inhabitants, whose hostilities, we were satisfied, would never be more than petty thievery and cowardly skulking.

So tired was I, when I made my bed in the sand, that I refused to get up and look when Roger sang out that a score of amphibs were watching us from the sea. The last I remember before falling asleep is an entrancing vision of Willa Anson making her bed like some primitive nomad in the days of evolutionary infancy.

What really awakened me several hours later I never was to learn. I sat up in a quiver of horror, positive that some frightful sound had reached my ears, penetrating the veil of sleep. Glancing anxiously around, I saw Roger asleep near by and the *Rambler* lying half out of the water as we had left it. Willa, however, was nowhere to be seen.

Looking at my watch, I saw that her trick had still another hour to run, and according to our agreement she should have been within easy call and plain view. Still shaky as a result of my unnatural awakening, I got up to look for her.

The wind had lain, and all around the island the waves pitched lazily, as if covered with oil. Never before had the tomb like silence of the cave-world so depressed me. It was as if the dank air vibrated with a gruesome message of doom.

A light splash behind me, as I surveyed the interior of the island, brought me sharply about. Not fifty yards from shore I could see the ripples made by a suddenly submerged body, and I did not doubt that it had been an amphib, made overbold by the absence of our sentry. Farther out to sea I made out three floating dots, which gave me the uncomfortable feeling that every move I made was being watched.

Again I turned to the jungle, approaching the dense thickets and calling softly, so as not to awaken Roger. In vain I tried to convince myself that nothing had happened to Willa, that she would presently come walking out of the jungle to laugh away my forebodings.

Again I called, louder this time, and again there was no answer but the sibilant slapping of the waves on the beach.

Breaking into the undergrowth a little way, I shouted a third time at the top of my voice, my heart turning to ice as only the eerie silence of the cave-world met my ears.

No one could have slept through the wild hallooing that I presently broke out with. As I paused to listen again, I heard Roger panting up behind me.

"She's gone!" I choked out before he could speak, and for a moment of dumb agony, we stared together into the poisonous thickets that overran the interior of the island.

It was the dull glint of metal, catching my eyes through the thickets, that finally overcame the inertia of dread. Lunging ahead into the tangle, Roger close behind, I stumbled over Willa's rifle. The stock and magazine were covered with dirt and crushed leaves as if it had been thrown down violently by a powerful hand.

Scarcely a dozen steps from the first clue we found Willa's hat, crushed into the oozy soil by a heavy foot. Dropping to hands and knees, we soon verified our suspicions when we discovered several web-toed footprints. There seemed to have been a brief struggle, for the boot tracks were deeply impressed and mingled in disorderly fashion with the other tracks for some distance into the brush. Then only the tracks of the amphibs showed in the jungle floor, and we could not help but believe that they had carried Willa away.

Following the plain trail through the dense thickets, we soon reached the opposite shore of the island, which was not more than an acre in extent. Breaking out at the edge of the sea, our worst fears were corrobated, when we saw that the trail seemed to lead into the water. There was no way of avoiding the horrifying suspicion that the frog-men had dragged their captive into the sea.

For a moment Roger stared out over the greenish surface of the inland deep, then he sank down, his face in his hands. But I was not so ready to accept the obvious.

"There's a chance," I insisted, desperately. "They are powerful swimmers. They could keep her head above water indefinitely. Remember that colony we saw last night on the way here? If they've taken her off the island we'll find her there—dead or alive. And it's got to be alive. Come on!"

Pulling himself together, Roger helped me search the island thoroughly for further clues to Willa's disappearance. But we found nothing more. As the truth become more vividly impressed on our tortured imaginations, I think we would have preferred finding her dead body rather than to be forced to accept any other alternative possibility of her probable fate.

Panting, stumbling in our desperate anxiety, we abandoned the fruitless search of the jungle. Running down to the beach, we piled the dunnage aboard the *Rambler* and pushed off. That more than a score of omphibs had appeared on the water south of the island increased our certainty that they knew more than we did, of what had happened to Willa.

Just how we reached the island where we had seen the gray domes of the colony I do not clearly recall. Yet I was in cool command of myself when we found the entrance to a lagoon and poled the raft through the overhanging leaves into a tiny bay almost completely surrounded by land.

A score of mounds were visible the moment we passed through the inlet. Only one marked difference was there between this colony and the abandoned one we had previously explored: the outlets of the tunnels leading from pit to pit were plainly visible around the banks of the lagoon, being about half-filled with water. Ripples were widening around some of the dark openings where their sentries had been on watch as we came in.

"If she's alive they've got her in one of those nest-pits," I called to Roger as we held the *Rambler* with our poles until it stopped drifting.

"But it's sure death in there," he groaned. "They can get at us under water." Then he muttered grimly: "I guess we might as well die now as later. If we can't find Willa I don't care to get out of here alive."

"Nor I," I agreed with all my heart. "But I'm going in alone. You've got to watch the outlets and see that they don't get away with her while I'm underground. If I fail it will be time enough for you to try."

Roger shuddered as I began poling the raft toward one of the dark, mud-walled passages. I knew he was picturing the grisly possibilities of Willa's fate, but I did not give him time to change his mind about our plans as I prepared for the venture into the colony catacombs.

My only real hope of succeeding lay in the fear the enemy had of our explosives. In such close quarters I would not dare to use dynamite, yet they would nevertheless expect me to use it, and besides, with Roger's pistol and my own, I would be far from actually helplessness. Moreover, the head-lamp would blind their eyes.

As I stepped off the raft into the mouth of the arched passage, Roger seized one of my hands in his and murmured broken encouragement. For all I knew those were the last words I was ever to hear from a human being, yet with a courage that was almost madness—the courage of the bereaved lover—I plunged into the shadows, wading waist deep in dark, still water that reminded me of the bilge in a ship's hold.

CHAPTER XIV

THE beam of the head-lamp gleamed eerily on the dripping walls of the dungeonlike passage as I waded on into the Stygian darkness. A smell like gasses from a leaky furnace saturated the dank air, making breathing exceedingly difficult. Alert for any increase in the depth of the water, I felt my way along, holding the pistols ready for quick action if the amphibs attacked me. At least I could feel sure that all danger lay ahead, for Roger would prevent the creatures from coming in behind me through the lagoon entrance. All I could think of as I plowed on through the dark water was that somewhere ahead, in the foul nest-pits of the amphibs was Willa Anson, a helpless captive of man-beasts whose real nature we did not yet know.

For fifty yards I made my way down the almost straight channel in a silence so deep, that I could hear the hammering of my heart. I had begun to fear that the colony had all escaped, carrying Willa with them, when a light splash in the darkness beyond my head-lamp's rays informed me that the enemy was close at hand. Hardly had I come to a stop, tensed for a struggle, when the oily-surfaced water heaved up in a moving streak of bubbles that shot straight for me. It was a creature attacking under water.

Twice I fired at the curving front of the ripples—just before it reached me. Cold, powerful hands dragged at my legs, as I strove to leap aside through the water. But the pistol shots had taken effect. Hardly had the hands closed on my leg before they relaxed, and the huge, gray belly of a dead amphib broke the surface close by.

Again a streak of agitated water shot out of the darkness ahead; again I fired at the hair-pin shaped front of the ripples. Then, all through the maze of underground passages a dismal howling broke out, and the second animal came to the surface, the bullet-riddled body staining the water with dark blood.

Braced against the slimy wall I awaited another attack, but none came. The enemy could not face the mysterious thunder of the pistols, which must have sounded like dynamite in the narrow, amplifying walls of the catacombs.

I thought I heard the faint shout of Roger Anson, far behind me, as I plowed on through the bloody water.

There was no more opposition to my advance. I reached the first of the mud-roofed nest-pits without mishap, while the fearful screeching and howling of the frightened inhabitants became fainter and fainter, as they fled deeper into the network of waterways connecting the nest-pits.

Playing the rays of my lamp about the walls of the well-like hollow in which I found myself, I saw many signs of recent occupancy. Three infants, that looked like monster eels with rudimentary legs, lay abandoned in a mass of sea-weed on the mud-shelf, or bed, that overhung the water. Almost ready to give up finding a sign of Willa's presence there, I came upon the impression of a small boot in the damp mud. I was on the right trail. They had carried her through this passage!

Filled with exultation at the propitious sign, I cupped my palms for a megaphone and shouted with all the strength of my lungs down the continuation of the waterway on the right.

"Willa! Willa!"

Listening with bated breath, my heart sank. Ominous stillness had followed my echoing shouts. Desperate again in my despair, I lurched under the mud archway that led deeper into the honeycombed island. That I might get lost did not trouble me, for I knew that I could break my way to the surface through any of the nest-pit roofs.

Stopping frequently to shout, I forged on into the evil-smelling passage. By switching off the searchlight I was able to tell by the feeble phosphorescent glow that I was nearing another nest-pit. The amphibs seemed to use the luminous substance of the cave-world to light their gloomy dens. The cries of the amphibs broke out louder somewhere close by, and I could hear loud splashes as they took to the waterways.

Then, in answer to my repeated calling, a sound reached my ears that fairly raised the hair on my head. It was a piercing scream—a woman's scream—suddenly cut off as by a throttling hand. Willa had answered. She was alive!

I plunged on faster through the water, nearly losing my footing as I drove my legs too violently against the grip of the hip-deep brine. Again and again I called out encouragement to Willa, firing my pistol to intimidate the amphibs that might be guarding her.

The shouting and pistol shots had an even better effect than I had hoped for. Bursting into the nest-pit I had been approaching, I found only two of them and struggling in their hands, as they strove to carry her into another passage, was Willa Anson.

I dared not fire at once for fear of hitting Willa, but I leaped at the creatures with clubbed pistols. Opening their cavernous mouths and uttering horrid screeches, they let Willa go and lunged to meet me. It was exactly what I wanted. With Willa out of the way, I fired rapidly at point blank range, while thrills of stark horror coursed through me. One went down in the middle of the pit, the other collapsed even as he clutched to drag me under water.

Tearing myself loose from the hideous, death-locked hands, I ran to Willa's side, as she lay exhausted on the mud shelf just above the water line. The howling of the amphibs in the deeper passages had broken out with redoubled volume by the time I had raised Willa's head in my hands, pouring out broken expressions of thankfulness as I found that she had not been harmed.

"Bob! Bob!" she moaned, opening her horror-widened eyes. "I thought you'd never come."

"We can't stay here!" I cried, pressing one of the pistols into her hands as she revived. "Stand guard while I break out through the roof of the pit. They may rush us in a mob any minute."

The distant howling of the colony had grown much nearer by the time I had drawn my camp-axe and attacked the roof of the pit. There was an ominous note, not entirely fear, in the voices of the enemy. It was like the roar of a maddened mob that gathers courage in numbers to avenge some offense against society.

"They're coming!" Willa called in despair. "Hurry, hurry!"

I redoubled my blows on the mud roof. The fragments flew all about us, spattering over the murky water under the shelf on which we stood. It seemed I never would get through that thick, mud vault, which reminded me of a beaver's home. But at last the blade of the axe bit through and I began frantically widening the gap.

The heavy splashes of the amphibs leaping in and out of the shallow water of the runways were echoing in the nest-pit by the time I had made a hole large enough to let us out. In a moment I had pushed Willa up and through and had scrambled after her, gasping in the fresh air of the jungle with a relief that knew no bounds.

"Which way is the raft?" Willa was calling as we stared about us through the stalks of giant cattails and ferns.

At first I was as confused as she as to directions, but not for long. A heavy explosion sounded on the left—Roger Anson with the dynamite bombs—and toward the sound we ran, crashing through the dense thickets and circling the gray domes of the nest-pits. Behind us, speeding us on, we heard the maddened screech of the first amphibs trying to emerge from the hole by which we had escaped.

When we broke out of the jungle at the edge of the lagoon we saw Roger poised at the stern of the *Rambler,* dynamite and lighter held in readiness for a deadly cast. All around him floated the dead bodies of the enemy. They had evidently rushed him, as they poured out of the invaded catacombs on their way to the sea.

Roger's glad shout as he caught sight of Willa and me must ever remain vividly in my memory as the climax of a most frightful experience. But there was no time to congratulate ourselves. The jungle was teeming with enraged beings, who at any moment might lose their terror of our explosives in a mob frenzy that would overwhelm us with numbers.

As Willa and I splashed out to the raft and climbed aboard, Roger had already begun poling out to sea. We lent eager hands, and before the first of the amphibs had appeared on the banks we had reached the outlet of the lagoon. But we had forgotten that the water was the place to look for real hostilities from the amphibian creatures. Unseen by any of us scores of them had been swimming out of the tunnels into the lagoon. It was while we were hastening to set the sail that we felt the *Rambler* lurch heavily and come to a dead stop. The frog-men had seized the bottom on the raft.

"Lie down!" yelled Roger, who still held the dynamite bomb.

Willa and I dropped to the deck as Roger knelt and lighted a short fuse. The stick landed close to the gunwale, exploding just under water and throwing sea water over us. As we struggled to our feet we saw the dead bodies of several of them rise to the surface all around, while the raft drifted out of their clutches.

Fortunately for us a stiff breeze had sprung up out of the south during our invasion of the colony. With the sail drawing to full capacity, and our poles and oars helping, we quickly left the islands behind, heading for the volcano in the north and the heated belts of water where the amphibs could not follow.

We were nearly half a mile from the outer fringe of the group of islands before we saw anything more of the enemy. Then the sea behind us was suddenly speckled with bobbing heads as they came up to watch us.

"They're trying to surround us!" Roger cried a moment later, as the right and left wings of the sea horde began to swim past us on either side, forming a widening half moon.

"If we're going to make the volcano before they head us off we'll have to make better time than this," he concluded.

"But we can hold them off till Doomsday with the dynamite," I called back.

"No, we can't," was his disconcerting reply. "I used the last stick back there at the mouth of the lagoon!"

CHAPTER XV

A HALF hour after our escape from the island colony the twilight sea of the cave-world was thronged with the queer, rounded heads of countless amphibs. They were deploying rapidly, with almost military precision, forming a huge circle around the raft, right and left flanks swimming ahead and leaving a string of skirmishers behind. It was as if every being in the subterranean deep had been summoned to avenge our invasion of the colony and our thwarting of whatever plans they had had for Willa Anson.

Never before had we seen the creatures in such numbers, or so determinedly hostile, and with the last of the dynamite gone, we despaired repelling them once they overcame their fear of our weapons sufficiently to rush us *en masse.* Only our certainty that they did not know we had run out of dynamite gave us hope of reaching the heated water near the volcano safely, where the creatures must turn back, or follow us by land against the scorching heat of the crater.

Reloading the rifles and pistols and trimming the sail to draw every puff of the precious breeze, we settled down for a grim vigil, never knowing when a detachment of amphibs might swim up under water and capsize us, or hold fast to the raft while the others swarmed aboard and dragged us into the sea.

While we watched, praying silently for more wind, Willa related, in a low, tense voice, how she had been lured into the jungle early that morning by strange noises, and how skulking beings had overpowered her before she could give the alarm. Muffling her outcries, they had carried her into the sea, where powerful swimmers had towed her to the island colony. Only her own proficiency in the water had enabled her to survive that wild ride on the shoulders of the amphibs.

"I don't know what would have happened if you hadn't come when you did," she concluded, shuddering. "Those man-beasts are capable of anything."

My hand went out to hers, finding an eager response. Even Willa's proud independence had been shaken by her terrible experience, and in any other situation I am certain that I would then and there have confessed my love.

But there was no time for sentiment, nor could we rejoice over our previous good fortune with the hordes of enemies hovering so near. Eyes fixed in fearful fascination on the ring of death closing around the raft beyond range of the rifles, we crouched behind the gunwale of the *Rambler,* awaiting the pitched battle that seemed impending.

The islands where we had passed the night slowly faded from sight in the luminous, moving mists to the south. The amphibs at last completed their wide circle around the raft, having little difficulty in keeping pace with us without breaking their formation. Their only reason for such a maneuver seemed to portend closing in on us eventually, yet an hour dragged by with no sign of hostilities. Their fear of the dynamite and firearms seemed as strong as ever, though we were soon to learn that in this we were sadly mistaken.

We had begun to notice the nearing of the eastern and western shores, indicating our approach to the narrow bay at the northern end of the sea, when a loud outcry suddenly broke out from the bobbing heads of the enemy. An ominous babbling spread from throat to throat until the whole army of reptile men was croaking in what seemed a wild battle song.

"We're in for it now," Roger called huskily from the stern of the raft, where he had lashed the rudder to the gunwale and had gripped his rifle in readiness for deadly action.

Willa and I followed his example, expecting every second to feel the shock and tug of under-water hands, and prepared to fire through the crevices in the deck logs or to repell boarders. But the *Rambler* plowed on unhindered, and though we strained our eyes unaided and also through the field glasses, we could discern no diminuition in numbers that would signify the advance of a detachment under water.

The excited calling of the amphibs gradually died away. With great relief we saw that they were drifting farther off instead of coming nearer. Overjoyed at our good fortune, and vainly guessing what the outcries had signified, we reached the first belt of the heated water, sighting far ahead the faint red glare of the lake of molten lava at the northern extremity of the sunken sea.

As the temperature of the water increased the ranks of enemy broke and spread apart in front, dropping back abreast of us and swimming toward the shores. Sailing on into the bottle-neck bay, between the extinct craters on the east and the active volcano in the northwest, we watched the amphibs clamber ashore and run along on land, weirdly motioning and screeching to one another.

"You'll never get us now!" exulted Roger, shaking his fist at the hideous figures, whose cries were now being drowned out by the hissing of the geysers at the edge of the volcano.

The massive natural arches and pillars overhanging the vicinity of the volcano loomed clearer and clearer, as the raft lurched on. Almost all the amphibs had taken to the land, a scattered few behind us, and for some reason then unknown, the majority had gathered on the western shore, which led to the undermined wall confining the boiling lava. At any minute we expected the advancing horde must turn back before the blistering waves of heat from the crater core, yet they ran on determinedly, waving their stubby arms and screeching with such vehemence that their voices occasionally were audible above the bellow of the geysers and the crackle of water bubbles.

We were ready with the oars when the wind fell as a result of the intense heat, and a dead calm settled over the steaming sea. Keeping midway between the banks and away from the crowds of frenzied enemies, we rowed on steadily, hoping to land at the entrance of the caverns which we had explored two days before. Though the boiling water was beginning to burst up and spatter us with searing drops, we preferred a scalding to falling into the hands of the enraged amphibs, and we held our position in the center of the strait, still confident that the animals would turn back as the heat became more and more unbearable. Why they had not attacked us before we reached the heated waters, we could not then understand, for they seemed to have overcome their fear of the explosives. Three shots from Roger's unerring rifle, and as many dead ones did not deter them in the least.

It was Willa who finally called our attention to the real intentions of the amphibs. The masses on the western shore had begun to climb the fire-blackened wall of the cave-world, crawling along each ledge and fissure toward the white-hot crater lake. Overcome by a horror that must have been intuitive, for we did not immediately realize exactly what they were about, we rested helplessly on our oars, watching the climbing enemies, the raft spinning slowly with each gurgitation from the hot sea bottom.

More and more of them scaled the steep walls as we drifted in an agony of suspense. The cliffs became alive with writhing bodies, all gleaming dully in the flickering light of the volcano as they edged along the precarious footing, nearer and nearer the blistering radiations of the crater. In our awakening to what the creatures planned to do, I realized that this was what they had been babbling about back there in the cooler waters, when we had been so sure of escaping them.

Then the vanguard of the climbing horde reached the edge of the crater, braving the blasts of heat and clouds of steam and showers of hot water and mud with a humanlike resolution to do or die.

All around the vast crater cavity the action of terrific heat through the ages had cracked and loosened great segements of the dome and walls. It was upon these crumbling masses that the amphibs concentrated, squeezing into every crevice, pushing one upon another, their grey bellies interlocked like crowded nests of worms. More and more came up along the wall, until the rocks were buried in a wave of straining bodies.

Stunned with horror, I saw the rocks begin to move —tip forward, then back, then forward again over the outer edge of the undermined cavity of lava. Farther and farther over the crater's brink the rock masses tottered as the enemies doubled and trebled their efforts and numbers. There could be but one result if they succeeded in uprooting those tons of crumbling stone and lava crusts. The lake of lava, already overrunning into the sea, would dash over the low crater rim in a flaming flood that would throw up vast quantities of steam and scalding water. And we were less than a quarter of a mile from the crater edge. The *Rambler* might even be drenched and consumed by the exploding lava.

"Row back! Row back!" Roger's frantic voice cut through the roar of the geysers, startling me out of my trance of horror.

But even as I reached for my oar I realized that it was too late to escape. We could not have gotten out of the danger zone in the fastest motor launches, to say nothing of the unwieldy raft in a dead calm. Our only chance was that the fiendish work of the amphibs would not turn out as deadly as they had planned.

With a grinding rumble the first mass of rock slid into the volcano under the combined efforts of the amphibs. Dust rolled up, obscuring the grisly horde and the teetering towers of stone. A dull reverberation presaged the sharp explosions caused by the impact of the avalanche on the molten lava. Livid gouts of fire dashed over the crater rim. The sea was transformed in seconds into a forest of spurting geysers, that sprayed us with a fine stinging rain.

For an instant hope flamed up anew. The first small avalanche had not been sufficient to cause a serious eruption or overflow. Then with a suddenness, which caught even the frog-men unawares, a vast section of the weakened walls gave way in a swirl of dust and lava ash. A deafening roar welled up as the escarpments crumbled and poured down. The hideous screaming of stricken frog-men, caught in the ruin of their own contrivance, joined the thunder of falling rocks, and through the dust and steam great streamers of fire burst out.

Instinctively, I caught Willa in my arms and pushed her under the gunwale, shielding her body with mine as the surface of the sea quivered with the shock of a tremendous convulsion. Blinding waves of heat and clouds of dust rushed over the *Rambler*. Even the tossing of a pebble into a volcano has been known to cause an eruption, and the falling of half the western wall into the lava-brimming abyss could not have ended save in a terrible catastrophe. We were caught like rats in a trap; like Samson with the Philistines, the enemy had pulled down the temple on us and destroyed themselves.

Explosion after explosion tore through the bluster and shriek of the geysers. The bosom of the sea welled up in a boiling flood, lifting the raft in dizzy circles, while we choked and gasped for air. Rocks rained down. The hiss of molten mud, falling into the sea, sounded like the rattle of machine guns. Far away and behind I heard the boom of falling walls as even the immemorial granite was shaken down by the titanic convulsions of the awakened volcano.

How we survived that first deadly shower of lava I do not know. A fragment of stone, spinning down out of the steam-fogged dome, stunned me for an instant. When I recovered I heard Roger calling at the top of his voice that we were drifting north at a terrific rate of speed. A swift current, caused by the upheaval of the sea, had caught us up and was rushing us on through the inferno of the eruption. As I struggled to my knees, weak and dizzy, a lurch of the raft threw me backward, and I rolled against the limp form of Willa Anson. A chilling fear coursed through me as for a moment I thought her dead. Then I felt her stir and moan.

"Hang on! Tidal wave—on the left!" Roger's call pierced the bedlam. Looking up dully, I saw a gray-swirling wall of water loom up through the billowing clouds of steam. Before I could make a move to protect Willa or myself, the wave rolled over us, flinging me against the starboard gunwale, and sweeping the deck like a new broom. There was no searing of scalding water. The wave was ice cold, or seemed so to my blistered skin. It had swept down on us from the waters farther south, a current not yet heated by the cauldron near the rim of the volcano.

A terrific suction of wind bore down on us with the passing of the wave. As a curtain is drawn back by a swift hand, the air was whipped clear of steam. On the left, brilliant flashes of fire lighted up the banks of the extinct craters, whose vast maws gaped like the nadir of eternity. The shore was lower now than the level of the sea; the upheaved water had risen over the edges of the craters and was pouring into the bottomless abysses in torrents like a hundred Niagaras.

Willa's scream of terror pierced the din as I stared in horror at the cataclysm occurring under my very eyes. It seemed that we must surely be swept down that mighty slope of sea water that was emptying into the bowels of the earth. But the raft was caught in the grip of a powerful current that was drawing us away from the brink of the vast waterfalls. We were headed north, the volcano gradually receding in the southwest.

Then the whirling air currents drove the steam back over us and once more we were blinded to the terrible destruction going on around us.

I thought we never would get another breath of fresh air. The hissing, frying sea seemed rising to choke off the last gasp of life. Consciousness became dim and delirious. Far away I thought I heard the roar of dinosaurs and under the side of the raft a viscous bulk reared up momentarily as a dead sea monster collided with it, to be swept away on the next instant into the whorls of a vast vortex of brine. Once the glassy eyes of an amphib glared up at me out of the hell-broth, and was gone again in a rush of white scalding foam.

Again the banks of steam were whipped away briefly. We saw ahead the honeycombed walls at the northern end of the sea. We were drifting into the caverns that led to the underground river. On the right were the passages that led to the subterranean canyon, and beyond them the craters into which the sea was emptying itself.

Frantic in our fear of being swept into those caverns leading to the underground canyon, where we would be plunged to certain death on the flooding tides of sea water, we seized the oars and struggled to steer the raft. But our efforts were of no avail. The mill-race of raging brine was carrying us whither it willed. Our fate was in the hands of Providence.

Nearer and nearer we came to the frowning wall. The sea had risen many inches, pouring into the caverns in ashy torrents, half-filling the passages leading to the underground river. For a moment I feared we would be flung against the rocks between the cavern mouths; then I saw that the currents were sweeping the raft and incalculable masses of débris straight into a yawning fumarole. Again luck was with us, for I recognized the passage as one we had explored, and which led under the wall of the cave-world to the channel of the underground river.

The raft lurched heavily, grating on a submerged rock. It veered widely and shot on, broadside. Slowly the *Rambler* straightened out in a path of leaping foam. I felt a draft of cooler air as the vault of the fumarole closed over us and darkness enveloped us like a cloud of lamp-black. Far behind the crash of falling walls and vomiting lava was muffled to a low, turgescent rumble.

CHAPTER XVI

SLOWLY our senses cleared as the thunders of the erupting volcano and the falling walls of the cave-world were lost in the low, muttering wash of water against the invisible walls of the cavern. In a long, dizzy curve the flooding sea water swung us into the underground river channel, which we identified by dipping our fingers over the rail and touching the water to our tongues. Hope rose stronger as we realized that our chances of escaping alive had doubled with the passing of the greatest menace. Somewhere ahead, the underground stream, swollen to a raging torrent by the upheaved sea, might bear us to a surface outlet, or into some unknown gallery of caves that would lead to safety.

"Bob! Willa!" It was Roger Anson's hoarse voice calling out from the darkness that pressed upon us from all sides.

"I'm all right," came Willa's faint response, and I also made known that life still was in me, though at very low ebb.

We crept nearer together, gaining courage from the contact of our bodies, as we gathered around the *Rambler's* mast, shrinking as far as possible from the dark waters that gurgled and foamed around the battered hulk that remained of the raft.

Time after time the *Rambler* ground against the dripping walls of the subterranean channel, backing away, spinning slowly and speeding on again into the endless stretches of darkness. Cooler and cooler became air and water. The salty tang disappeared entirely from the river as we floated farther from the disintegrating cave-world. The silence, the fresh air, the steady onrush of the black water, that bore us to doom or to salvation, was like heaven after the hurricane of lava and thundering sea. Dimly I wondered what had become of the amphibs and the monsters of the inland deep. Had they all been destroyed? Was the sunken sea vanishing into the vast crater maws into which it had been pouring when we drifted into the passage to the underground river? And were the seismographs of the far away upper world recording the upheaval that had spat us from the mouth of hell?

On and on we floated into fathomless gloom. The current gradually slowed down, though still swift and strong. There was less danger from the collisions we had with invisible obstructions. Yet still we did not know what moment we might plunge into a chasm in the river channel. Mystery was before us, yet certain death lay behind, and we were glad to take our chances on the unknown.

It was during the unreckonable hours of that fearful voyage on the underground river when I told Willa all that I had hitherto so manfully suppressed. Deliriously happy, I learned that she returned my love. All three of us came near weeping together, for it was like a death-bed confession, with Roger Anson the priest of the sacrament. Solemnly we vowed that if ever we reached the upper world alive nothing material should ever come between us. After the dangers we had braved together, my former reticence owing to the Anson wealth seemed foolish indeed.

We had given up completely to the whims of fate, and were dozing fitfully on the slippery deck of the raft when Roger sighted a twinkle of light ahead. His cry of joy brought us to hands and knees, scarcely able to believe what our vision registered. A grayish glow was spreading rapidly around us, mysterious, divinely beautiful to our light-famished souls. The vault of the river channel showed dimly overhead, the surface of the stream gleaming like a mirror of jade.

Feebly we rose to our knees, as we heard the low roar of water rushing over rocks. The light increased to dim sun light. We smelled the odors of sun-dried algæ, the faint tang of pines. Wider and wider stretched the underground river as we neared the source of the sunlight, the vault dropping so low it almost scraped our mast.

Then we knew what we were approaching. It was the bottom of a deep canyon, one of the countless gorges of the Grand River system.

Torn, bedraggled, staring up at the light with pale, drawn faces, we floated into a narrow, deep stream, whose vault was no gloomy stratum of granite, but a strip of sunlit sky, edged by serrated crags and ledges. Daylight!

Down a steep, long rapids we plunged, oars in hand, frantically fending the craft off the rocks with the last ounce of strength in us. It seemed that the swift current would never end. But at last the canyon walls receded, and we sighted still water near a wide, low sandbar. In a last desperate struggle we brought the raft aground and staggered out upon the sun-warmed sand, sinking down in a state of utter exhaustion.

How long we lay there I do not recall, but at length we recovered sufficiently to take account of ourselves. Aside from a few bruises and slight burns we were whole and sound. But we had nothing left but life and limb. Every bit of dunnage had been swept from the raft—camera, searchlights, rifles, shovels, ropes—even the sail was gone and a part of the ropes that had stayed the mast. All we had was the rags on our backs and the pistols at our belts.

A few minutes later we climbed out of the canyon into a wild mountain district altogether unfamiliar to us. All the rest of that day we hiked and climbed, searching for a landmark that would give us our bearings. But by nightfall, miles from the canyon from which we had emerged, we still were lost, and we slept in a high ravine on empty stomachs.

Late the next day we sighted a landmark on the trail to Comanche Cave. By that time we had lost all memory of the location of the canyon into which the underground stream had drifted us. Nor did we care at the time whether we ever remembered the past, if we could but soothe our eyes with a glimpse of mankind and of a city street.

Ragged, half-starved, our shoes worn off our feet, we stumbled into Antlers in a state of collapse. An ovation greeted us, for Pete had reported us missing a few days before, and an expedition was being organized to search for us. Needless to say we were silent concerning the details of what we had found in the depths of Comanche Cave. Without the camera and film packs, we had nothing to prove our story, which was far too wild to be substantiated merely by our testimony.

We returned to Denver resolved to say nothing of the real nature of the sunken world. And the story we told to friends and press was far from the whole truth, though it was accepted as such.

Someday we may return to Comanche Cave and try to bring back evidence of the wonders to be found under the mountains, or to ascertain that the cave-world was destroyed by the eruption. But somehow we are quite willing to procrastinate. As for Willa and me, we are hugely satisfied with the adventures to be found in the upper world, and even the adventurous Roger, now my refractory father-in-law, never presses us to attempt reentering the horrors of the inland deep.

With the exception of one curious fact, we would be inclined to disbelieve our own memories as to the adventure. But that fact cannot be refuted. It is that by cautious inquiries, we found out that during the very period of our terrible voyage out of the inland deep, the seismographs all over the world registered distinct earth tremors, which were traced by seismologists to the locality of Middle Park in the Rocky Mountains.

Was the sunken sea emptied into the mouths of the extinct craters after the upheaval of the cave-world? Was the vast cavity with its strange, moving lights and prehistoric monsters filled with erupting lava? Were the cunning amphibs, those missing links of man's evolutionary tree, buried alive by their efforts to destroy us in the ancient tomb of time?

The answers to these questions I must leave for the future—if, indeed, they ever are answered. Meanwhile the love that Willa Anson and I found in the deeps of Comanche Cave must supplant the loss to science of a marvelous discovery and the thwarting of my ambitions as a revolutionary geologist.

The End

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"HOLD 'er there for a while, Tom. I want to get three more electroscopes and a recording bolometer. The thermopile doesn't record, you know. The recording electroscope will give us a photographic record—but no immediate information as the experiment progresses," called Dr. Randolph Warren. He swung himself to the three-inch thick fused quartz tube, wrapped his hands around its milky column, and slid down the shaft forty feet to the ground below. A whining hum of electric motors and the slap-slap-slap of the silk ribbons mounting to the huge aluminum sphere above, drowned out the call of Tom Blamen, inside the sphere. Tom wanted to know if he might try the thing on low voltage once. Tom didn't get an answer, but he looked at the meters, and saw a needle quivering at the point marked "17" on the master meter.

"17,000,000—and I'll have to discharge somehow before he can place the ladder to climb back. It's a shame to waste all that—" He looked out of his observation window, a conducting window made of two sheets of plate glass separated by a layer of dilute sulphuric acid. Set in the aluminum sphere it maintained the conductivity of the metal across the gap.

Twenty-five feet away a weird mushroom rose from the concrete floor of the concrete laboratory. Set on a tripod of carefully designed insulators, the half-sphere seemed some strange growth. The polished aluminum with its discharge points pitted and scarred by the lashing force of terrific discharges was joined to the sphere by a clear tube of fused quartz. This seemed swollen half-way between, and the three-inch tube opened to the size of a foot-ball. Around this swelling, held in position by strings of insulators depending from the ceiling twenty feet above, were three tremendous magnets. The swelling in the tube contained a smaller globe or sphere and in this was a filament of iron wire. The inner tube was very highly evacuated, one of the dozen tubes Sanderson brought back with him from his voyage to space beyond the earth's atmosphere in fact. In 1952 there had been a dozen tubes, now in 1955, only three years later, but four remained, so those absolutely evacuated tubes were very valuable. Opened, then sealed while in empty space, they were the only *EMPTY* tubes on earth. It spoke of the importance of this experiment that the University had permitted this tube to be used.

Blamen's gaze shifted back to the mushroom tower, down its insulated base to the powerful electric motor which drove a white ribbon of silk. The ribbon of silk brushed against a bit of *CHARGITE,* a specially designed compound which gave the silk a charge of electricity. The endless belt whisked the charge up to the sphere above, where points collected it and carried it away to the sphere. Like an endless-chain bucket conveyor the silk ribbon was bringing electric charges up, as a similar ribbon carried equal—but opposite charges to the control sphere where he sat.

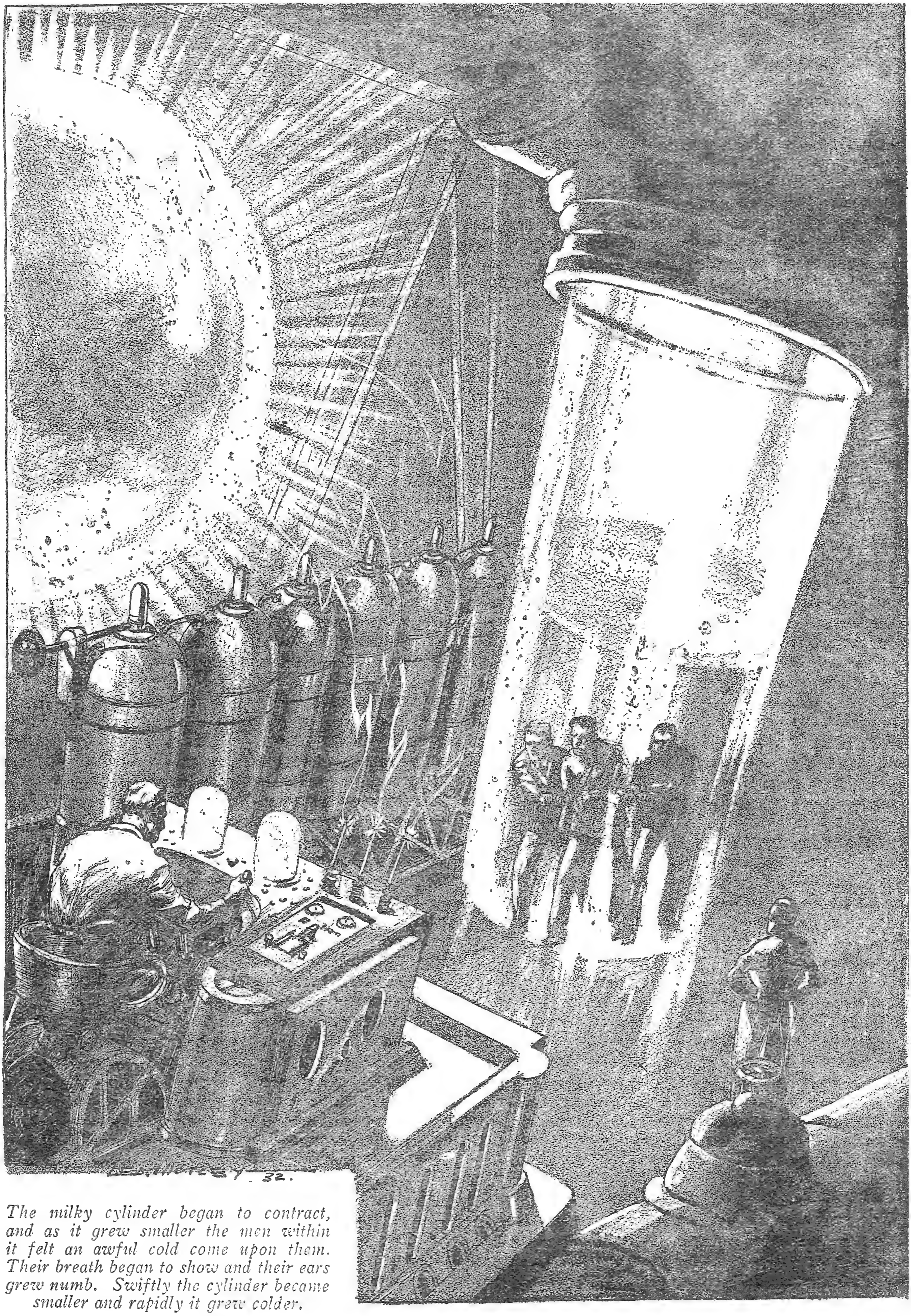
Tom Blamen was in a whirl of hesitancy and doubt. He looked nervously about. He could discharge the spheres in a bolt of lightning to the heavy metal conductors thirty-five feet away by simply running out the discharge-arms. But it seemed a waste of energy—

Ran Warren was back—he stood in the door looking up at the man in the window of the sphere.

"Shall I discharge through the tube?" asked Blamen, eagerly.

Warren didn't hear, but as anyone might, nodded in annoyance, "Yes—discharge to towers—send down the ladder, of course."

Blamen accepted it as authority to do what he wanted. He gave a glance at the dials—17.6 million volts now—He stopped the motors, and the bands slowed with a doleful slap-slap-slap. He threw another switch, and the three enormous magnets surged with terrific, hitherto unused, power, a magnetic field of compressive force, three tremendous magnetic fields opposing each other, and pressing down simultaneously on that little inner tube. The fine iron filament-wire trembled. Suddenly it burst into blazing, explosive incandescence as a tremendous current rushed through it—and simultaneously the terrific, stored energy at 17.6 million volts smashed through the iron vapor in the little tube. Seventeen and six tenth millions of volts leaping across a gap of eight inches!



The milky cylinder began to contract, and as it grew smaller the men within it felt an awful cold come upon them. Their breath began to show and their ears grew numb. Swiftly the cylinder became smaller and rapidly it grew colder.

Warren leaped forward in amazed surprise. "Tom, you fool—don't—" He stopped, and froze as a terrible cry came to his ears.

In the tube a light had formed. The discharge was all over—should have been. But in the tube was a virulent thing that glowed some indescribable color, a violet so tremendously deep that it seemed a red-black. A wave of energy struck Warren, that made him throw a protective hand across his eyes, and stagger back from that room of incandescence, back, and out to the corridor beyond. His eyes were in torture, his whole body felt crisp and dry. Still that terrific light was glowing around the corner of the door, beating out at him, and still the feeling of heat and some terrible, impact of energy parched his body. There were faint mutterings, shakings and quivers in the building now, the light from within was growing stronger. Suddenly there was a terrific explosion. The light grew bluer, and more brilliant, it seemed to increase rapidly, and the man staggered under a wave of beating, destroying energy, invisible, but terribly tangible.

Then in an instant it was over, and only a heaving and restless movement of the building remained. Warren slumped to the floor as cries of panic echoed from other parts of the Heavy Apparatus Laboratories.

A crowd of men was collected about him, a doctor bending over him and two stretcher bearers nearby, when he regained consciousness. He groaned in agony as he woke. His whole body was stiff and sore. He could feel a terrific coat of sunburn over all its surface except where something as thick as his belt or shoes had protected him.

"Burn—radiation burn of some kind. Take him to the infirmary and coat him with 732-aE. It's serious. How's the other man?"

"Dead—very. Burned raw, and looks as though he might have been electrocuted first. We'd better clear out, the wall is cracked badly."

"Wh—what happened?" asked Warren blankly and inanely.

"If you don't know, nobody can tell you, Warren," replied Jordan of Chemical Processes, who stood beside him now. "You started an earthquake though that darned near knocked the building down. We all left, then discovered you two hadn't, and came back. You were lying here, and Blamen—he's gone, Ran," he concluded gravely.

"Blamen—started the tube—something happened. I called him and told him to discharge to the towers—to the ground—but he discharged through the tube. Is the apparatus all right?" Warren asked anxiously.

"The Sanderson Tube is gone—everything else O. K."

Warren groaned. "Oh Lord, I could replace anything but that!"

The stretcher bearers were carrying him away before he got a chance to say any more, and the pain of the burns came back. He groaned softly. "The Sanderson tube!"

* * * * *

"And so, Putt-putt, I've come to you as usual. It was a wild yarn I told, and I was dismissed with regrets, but my illness, lasting more than three months, made it imperative for them to have some man to take my place in the meantime—and somebody said something about a Sanderson tube and somebody else mentioned 175,000 dollars damages to buildings——

"And now I've told you how I left the Unuiversity."

Donald Murray Putney, sometimes referred to by Warren at "Putt-putt"—and filthily rich—" inventor of the gasoline turbine, which had promptly wrecked several hundred promising gasoline engine companies, till they bought his patents, and supplied Warren with material for endless annoyance, was not satisfied that he heard the whole story.

"Yes, how—but not, why. What was the wild tale?" he demanded. Putney knew Warren was not addicted to wild tales, especially if they might be interpreted as excuses for himself.

"Well—I suggested that the action, which I saw, must be due to some hitherto unknown force. Certainly, Don," he went on, warming up to his subject, "there wasn't enough energy in my apparatus, taking the total energy stored on the two spheres, the field energy of the three magnets, and the potential energy, too, for that matter—they fell down you know—to start an earthquake. Also, a discharge, even of 17.6 million volts—all the instruments jammed—wouldn't give me a case of sun, or radiation burn that would lay me up in the infirmary for three straight months. Anyway—I had different aims." He quieted suddenly as he remembered he was started again, and the last reception of his theory had made it a painful discussion for him.

"What were the aims?"

"Energy of matter," replied Warren grimly.

Putney was silent for some moments, puffing his pipe leisurely as he leaned back in his chair. The furnishings of his bachelor apartment were dedicated to the Goddess of Comfort.

"Hmmm—that would cause an earthquake. In fact it might well cause several dozen earth-quakes. It would certainly cause an earthquake on Wall Street.

"By the way, who led the laughter in the Directors Meeting?"

"Old Nestor," replied Warren guardedly. "And it surprised me a lot. Naturally I would be surprised anyway, but old Nestor is no dumb business man. He got on that faculty for more reasons than one."

"Yes," agreed Putney, "he did." Putney smiled sourly. "That old boy is a live man, and alive to the opportunities too. He bought in there, because he can get information cheap and wholesale. That's why Nestor Aircraft is a strong investment. And does Nestor love me—? He does—like a shark would. I nearly wrecked him with that little patent of mine, and he hasn't gotten over it yet. What did he say?"

"He started them off, perhaps. I didn't expect him to say 'Impossible' but he was the first."

"Oh—did he?" Putney smiled to himself. "And has he spoken to you since? Warren, I learned when I had patents to sell—and you know I've sold a lot more since that turbine affair—that Nestor has ideas of his own on business manners. Who gets the rights on the discovery if you remain with the University?"

"Why—they would!" exclaimed Warren.

"Uhuh—open to everybody to use. No money in that. Well, you're kicked out. If your ideas are correct, who gets the rights now?"

"I would——"

"And that's where you're wrong. Would you? How could you get them—how could you prove it—how could you build the apparatus—?" Putney leaned forward with blazing black eyes. "You know you couldn't—not till Nestor furnished your laboratory, and he'd run off with the patents, and you'd get a salary. You're black-listed with Universities now, and you know it. So does he. He saw that you had millions—billions perhaps, in the palm of your hand. So he fired you. In a day he'll offer you a laboratory job, and set you on that again, and he'll get the money!"

Warren gazed at his friend in amazement. "You're right, Putt-putt. You're damn right. Only I'm going to ask you into a partnership with me. You've got the money, and I've got an idea, that is apparently worth Nestor's time!"

Putney stood up and stretched forth his hand. "And *we've* got a partnership, Ran, that nothin'll bust!"

CHAPTER II

"MR. NESTOR will see you now, sir," the secretary said. She smiled pleasantly at the tall, powerfully built, grey-eyed man. She began to wonder, as she noticed the expression about his eyes and mouth, just how successful Mr. Nestor would be in this interview. Mr. Nestor was usually successful in his interview, but there were little humorous crinkles around the big man's eyes, and graven lines of power and intelligence. But the jaw was powerful, the clean, square-cut lines of the face and the set of the head on broad powerful shoulders indicated determination. Most indicative of all, the lips were tight-pressed and they looked unpleasant. She mentally shrugged her shoulders, very pretty shoulders she knew they were too, and stood aside for him to pass.

"Ah, Dr. Warren, I'm glad to see you again," said the shrewd old man. The mechanical smile was intended to be winning. Ran Warren didn't like it. He didn't like Nestor for that matter, for it was Nestor, in his younger days, who had changed his career. Pressure here, influence there—and his father began to yield, for he had never had the determination and the power of will of his mother. Then—five big men, and one man, who was going to be big, jumped on him, and his holdings began to slide rapidly. But it made Nestor.

"What was it you wanted to see me about, sir?" asked Warren, attempting to come to the point.

"I have been wondering since I spoke so hurriedly in the Advisory Meeting, whether that idea of yours might not have been right. It really does seem strange to me that so serious a result could have followed a mere discharge in a tube. What do you believe caused the earthquake?" The keen, black eyes twinkled up at him like the eyes of a bird.

"Radiations, sir. I am certain no such power as would move the earth's crust was ever developed in those little electric motors that accumulated the discharge. I believe that that discharge started a release of the energy of matter, that the radiations were very largely of an extremely short wave-length, and that they penetrated the building readily. Certainly you know that all the photographic material in the laboratory was ruined, and some was at a considerable distance, behind walls. Suppose the radiations penetrated through the ground, and into the layers below. Eventually they would be absorbed. At whatever point they were absorbed, we would know there was water, for the laboratory was on made land. That water, converted to steam, would certainly have some such result. The radiations were so powerful in all probability that they passed through me, and the other humans without hindrance, and hence without result."

Nestor's eyes were bright. There was a calculating gleam behind them. "That's an interesting theory, and quite possible—if you really did succeed in smashing the atom."

"But I didn't. I destroyed it. It wasn't merely broken, it was annihilated, I believe."

"Matter cannot be destroyed, I thought?" said Nestor sharply.

"Apparently the others agreed with you. Were you going to reinstate me at the University?"

"I'm afraid that can't be done, Dr. Warren. But I was interested enough to ask you if you would like a job with my research staff. You could continue your experiments if you wished. I can offer you fifteen thousand a year."

A slow smile dawned on Warren's lips. "I'm afraid you are mistaken, Nestor. If you investigate the State files, you'll find there's a new firm—Putney and Warren, Research Engineers. I think you'll have to get someone else, so I'll say—goodbye."

Warren turned and strode out. Mr. Thaddeus Eustace Nestor looked after him with amazement. "What—hey—come back——" But Warren had already left. Nestor began to curse, then stopped abruptly. His plans had gone badly awry. He had intended to snap up Warren before anyone else could, and as Putney had suggested, get the benefit of this inconceivably important discovery. Now to his horror he discovered that not only was he unable to get it, but instead of getting it himself, Warren was to get the benefit. Had he left Warren in his position at the University he would at least have had an equal share in the discovery with all others, but now he certainly would not. There was just one answer.

He pressed a button, and presently the secretary appeared. "Send Mr. Williams over, Miss Oliver." The secretary retired, and called Mr. Robert Williams, head of the Nestor Research Laboratories.

Nestor Aircraft was only one of T. E. Nestor's holdings. The man had forward-looking ideas, and he had long since realized that research would pay an income as well as any other business, and the Laboratories were simply his invention factories. They handled all sorts of problems, and Mr. Williams was the head, and a physicist.

He appeared in a few minutes, and went into Nestor's soundproof office. "Well, what is it?"

"I told you Warren was coming? Well, he isn't. I made a mistake." Williams grinned broadly. The Old Man had made a mistake, and a bad one evidently. He didn't look happy, and Williams had been informed that morning that he was about to be made Assistant Director of Research, with Warren as Director. It hadn't appealed to him.

"A mistake? What was it?" he asked ironically.

"I got that blasted scientist loose from the University so he could come here—and what does he do? Does he thank me for it and come?—no! He's started a firm of his own! And Williams, get this; he's discovered how to annihilate matter!"

Williams started and looked at Nestor seriously. "How do you know?"

"Read about the explosion at the University three months ago? That was it. A tiny piece of iron wire, he said!"

"Where do I come in?"

"You're going to duplicate his apparatus, and better his record. I've already got track of a Sunderson tube."

"You're mistaken. I'm going to do nothing of the kind. Warren is the greatest atomic man in the world, and he always was a fool for luck. Remember the time Canstanti tried to start his racket on the University and sent a bomb? It fell beside Warren, and turned out a dud. Well, I'm not superstitious, but if it killed one man and nearly killed him, then it's bad medicine for Mrs. Williams' little boy, Bobby.

"What do you know about the power he used, voltages, currents and so forth? Suppose that instead of the slow release that merely killed one and half killed another, besides causing an earthquake, we got a rapid release. Any idea what would happen? You could blow this old world clear across the solar system!"

"You won't handle it? Why not try it with just a little?"

"Little? 'There ain't no sich animile' as the hick said. If I worked under a microscope I'd still have enough to blow the whole city off the map! I know physics plenty good for my work, but I'm no second Warren. You know his latest work has been showing Einstein's mistakes. There's just one other man who might do it, and that's Jimmy Atkill."

"Atkill—he's a disreputable crook. They won't even publish his papers any more."

"Sure he's a crook—but they never proved he killed the old bird. He had some kind of a death ray, and they never proved he used it. Try and convince a jury of twelve good men and dumb, that a death ray they can't be shown did the job!"

"He's a crook—but he's brilliant. Try him."

"All right. If you're afraid."

Williams grinned. "That's not a dig. That's not fear either, it's common sense. Want to play with matches in a dynamite plant? Want to come out and watch me work on that idea—when a piece, you can't see under a microscope, would blow the whole city off the map?" The Physicist left.

Nestor took out a pocket chess set, and sat playing chess with various combinations and problems. Then, after nearly half an hour, he put his little set away and reached for the telephone.

"Miss Oliver, get the physicist, Dr. James Atkill, on my phone. I don't know where he is, nor in what city. Get him." Then he hung up and went back to his papers. It was nearly an hour before Miss Oliver announced that Dr. Atkill was on the wire.

"Dr. Atkill speaking; is that Mr. Nestor?"

"Yes. Where are you?"

"Detroit:"

"Be here in an hour and I've got a big job for you. Hop by nearest plane, I'll give orders to send you right through. I'm in New York."

"I've got a good job here. What have you got, how long will it last, and how much?" was Dr. Atkill's response.

"Read about the earthquake at the University here three months ago? That was some of Warren's work. Destruction of the indestructible. That's all I can say over the telephone. The salary will be agreeable. Will you come?"

There was a soft whistle over the wire. "So my old friend Ran Warren has been shaking down buildings—and the indestructible has been destroyed. And why isn't Warren working on it?"

"Fool! He is. That's why I said hurry."

"Doesn't take much apparatus if he's working on it. He always was poor as the proverbial church mouse," chuckled Atkill.

"Doesn't it? Putney's backing him. Once and for all: Are you coming?" demanded Nestor irritably.

"On my way, gran'pa!" Nestor's face went red at this rejoinder from Dr. Atkill, and his close-cropped grey hair seemed to stand up stiffer than usual. He started to splutter into the microphone, but the instrument was mockingly dead.

CHAPTER III

"WELL, from the expression on your face, I should say that my guess as to friend Nestor's ideas was right, Ran?" grinned Putney as Warren came into the laboratory. Half a dozen men of Putney's staff were grouped around their chief, and smiled at the angry Warren.

"Very," replied Warren with a grimace. "He offered me fifteen whole thousands a year—and he knows damn well that, if my ideas are right, the thing is worth—oh there isn't any possible limit to set on it. It's beyond value. And the old skunk would keep it tightly wrapped up in his own private pink ribbon—to be sold only at his own prices. He's probably put it just low enough to wreck the existing power companies, and high enough to make an ungodly profit."

"What do you think his next move will be?"

"Lord, Putt, I don't know." Warren looked at his friend in blank surprise," I hadn't thought. What will he do?"

"He'll call in Williams, his chief of laboratories, and tell him to go ahead on it. And Williams, being an intelligent though not highly scrupulous man, will decline without thanks, explaining to Nestor just why—it won't be safe. Nestor will either force him to do it, or get—— I think he'll get Atkill, he's probably the next best man."

"He's the best, the best physicist in the world, and one of the most interesting men, but has the moral sense of a feudal baron. 'I want it. It's mine'. That's his one and only code. Nestor will probably be gypped. It's a shame a brilliant man like Atkill can't behave."

"He's second best—you're best and you know it. Now let's forget that and see what we want. You have the notes on your experiment?"

"Why no, they belonged to the University," exclaimed Warren.

"Nut! We don't know whether Nestor's got 'em or not. Wilson, you go to the University and try to buy them; up to a million I'll pay for them. And the remains of the apparatus that was wrecked." Putney ordered. Wilson nodded, and started off at once. Putney sat in silence for some time.

"I wonder—I wonder if Nestor might not try to get in here, and acquire some data?" asked Warren softly. "May I borrow your men for a while?"

"Go to it, Ran. What's the idea now?"

"Watch—and we may show you some new ideas." The physicist turned to the men around him. "Come on men, this is going to be war."

The rest of the staff had gathered, a score of men in all. To a man they were with Putney, and every one of that scientific staff were with the great physicist in his research. To them, the idea of the energy of matter was a fire to stimulate them to the utmost.

Outside the laboratory Warren surveyed the grounds with an appraising eye. The laboratory building stood on a low hill. Behind, rose ridge on ridge of the rolling New Jersey hills. The Kittatiny range off to the Northwest crowned the view with a green-blue ribbon. Below the large, concrete building was a series of smaller sheds and houses. The kitchen and mess-hall were set over a clear, bubbling spring; a little stream of water trickled down from it to the clear lake below.

The hillside itself was clear, but covered with outcropping rocks. Behind the sheds and the main laboratory tall metal towers strode off across the hills to the super-power transmission line five miles away. A high metal fence surrounded the entire property.

"Our first job is to set up a number of burglar alarms, and a burglar catcher or two. Men, you all live here don't you? I have reason to suspect we aren't going to have a happy stay while we are developing this thing, so we're going to fix it so one can get in or get out again if they do enter, without our knowing it. Come on!"

For the rest of that day the men worked, while Wilson, with the supply-plane made numerous trips too and from New York and the surrounding towns, bringing foods and other supplies. One of the things Putney ordered was a complete gasoline-driven power plant. The power line was too accessible, and since there had been no reason to believe it would fail he had never had an auxiliary plant.

The entire grounds of the laboratory were crossed and re-crossed with an endless chain of beams of ultra-violet light, and photoelectric detectors. A capacity bridge was attached to the metal fence, and several others set up in the grounds, making it impossible for anyone to approach them, without giving the alarm. Then the fence was wired, and it was possible to turn the current on either the power line or the power plant into it at any time.

It was night before they finished, and the hundreds of invisible beams stretched their fingers about. The grounds were equipped with searchlights that would automatically turn to the section from which any alarm came, and flood it with light. Three men were sent out to make an attempt to steal across the grounds, knowing perfectly the distribution of the beams, and with a careful map of the grounds. It could not be done. The beams could be avoided only by coming within range of the capacity bridges, and instantly a blinding glare flooded them, and the tortured shriek of a siren announced their failure.

Air attack likewise proved impossible, for again the capacitances were disturbed. "I think," said Warren with a broad smile," that we are safe."

"Uhuh—Atkill came to see Nestor to-day," answered Putney.

"Then you were right again. Williams didn't like the job."

"When do you start work?"

"To-morrow—when I've had some sleep," replied Warren instantly. "Let's turn in."

After breakfast they settled down once more to the discussion. Wilson was present, his combined office of scientific assistant and stenographer making him useful. Wilson was a small, slightly greyed man, self-effacing and one of those persons who are merely useful. He had never had an original idea, and probably never would, but as a scientific amenuensis, he was invaluable.

"What apparatus are you going to need, Ran?" asked Putney. "That's the point to start on."

"To begin with, the remains of my old apparatus, and a dozen pencils, the integraph, several calculus books, and some tables of natural and ten-base logs. Also some reference books on field theories might help. In the meantime, I'm going to discuss the idea with you. Wilson, will you see if you can get those things together?"

"Yes, Dr. Warren. In the study?" At Warren's nod he set off at once.

"Now, Putt, this is the theory I was working on when the grand smash came. I firmly believe that it is a law of nature that matter *Cannot be Destroyed.* Nothing in this universe can possibly destroy it!"

Putney stared at him in amazement. "Wha—what happened then?"

"Matter was destroyed, and released its energy!" There was a twinkle in Warren's eyes as he replied.

"All right, I give up. What's the answer?"

"I said, and I believe, that matter can not be destroyed in *this* universe. The matter that was destroyed was *not* in this universe! That matter was suddenly hurled beyond the end of space, out of space altogether, beyond the fourth-dimensional surface of our three dimensions. This universe is a hollow fourth-dimensional hypersphere, and the universe as we know it is the surface of that sphere. Well, what happens if it escapes from that sphere altogether?"

"But—it can't!" objected Putney.

"But—if it did?" demanded Warren.

"It—it could—it *couldn't exist!* Good God man, is that the secret! It *can't* exist, it is automatically thrown into a condition that prohibits its existence!" Putney's incredulous eyes fixed themselves on Warren.

"Almost, but not quite. That's true to an extent, that's what would happen if I could project it *completely* out of all spaces, but the thing is, that instantly it were projected out of this universe, it would itself become the center of a new hyper-space. Mass in itself creates a space about it. Do you see my point?"

"Right."

"Then that can't be done. But I *can* project it into a space whose laws are such that the matter *can't* exist. And the point where that other space touches ours, there the two modify each other, and intercommunicate. Energy released in one can be tapped from the other. I threw my energy into the alien space, and it is destroyed to free energy. That energy comes back to this space, and is at once converted to such a form of energy as is capable of existence in this space. Do you see the operation?"

Putney's face was pale as he contemplated the titanic forces that worked on the bit of matter that had been annihilated in Warren's apparatus. Space! Space, the master of Forces and Energies, space, with its immutable and infrangible laws had done Warren's bidding, and brought him the prepared result! A bit of matter tossed to it! A digested and refined bit of energy thrown back in its stead.

"Right! But, Man, how can the thing be done, why, doesn't it slip off of itself? How did you know there would be such a space near—near the surface of our world, as would do that?"

"There doesn't have to be. I *make* that bit of space. Don't you see, Putt, it *does* slip through of itself, tries to build itself a new space, and perhaps does, but where the terrific forces I'm sending through with it are, even that other space of its creation is so affected as to be sharply curved. Remember, earth's gravity is leaking through too, and so is the intense magnetic and electrical force. That maintains the conditions I want—or did, for some lucky reason. I must know exactly what the forces were. They told me that when Blamen was hit, every meter froze, the pivots melted, the works were blown out by something. Even the great magnets I used were melted after a time. The increase in the power of the magnets must have been the reason for the rapid increase in the intensity of the radiation that I had a chance to notice.

"At any rate, I'm going to work on them now, and I think I'd better learn something. I had the world's luckiest break really. You know I was trying to disturb space, I thought I might succeed in transmuting that iron wire. I never expected to annihilate it. If it had gone up all at once—you would probably have been annihilated as well. Did you stop to think that if I had started the experiment, as I intended, I would have been killed instead of Blamen—or rather with him? I never could blame the old boy too much!"

Warren went to the study with Putney, and together they started the work on the field strengths and data they had, the effects they knew or imagined or had learned, and tried to make sense. Little by little the chips of darkness fell from the truth, and they began to perceive the facts.

CHAPTER IV

"SOMEBODY told me," said Dr. James Atkill, "that you were clever, Nestor. That somebody was all wet, as the saying went. You ought to judge men better. You might have known that Warren never would fall for that play of yours, not while he had a friend like Putney to go to.

"Then, not content with that, you let him walk the apparatus right out from under your nose. My Lord, I didn't think they made 'em so dumb. Now, he's got all the data and all the notes and all his own memories. Were there *any* pictures of the apparatus?"

"Yes," snapped Nestor angrily, "and I have all of them." This tall, lean physicist with his disconcertingly keen grey eyes and the easy air of mockery, a subtle feeling that he was laughing at you even though his face was serious, rattled the shrewd old man.

"Well, that'll do some good. Did you get any of the apparatus-mechanics who set up his stuff? Those mechs, will know something about it." He ruffled his wavy blond hair thoughtfully.

"No, I haven't gotten them, but——"

"But your laboratory staff needs an increase," interrupted Atkill. "Get 'em."

"All right, I'll send for them now." The financier pushed a button, and told Miss Oliver of the increase in the laboratory staff. Half an hour later she told him the men had agreed.

"Now," went on Atkill, "just what happened?"

"Well—nobody really knows, you see——"

"I see—I see that everyone but Warren was out of the way, and so he is the one man on earth who saw it done. My dear employer, could you think of any way to mess things up any more? I'm the best physicist in the world, but when you start me off with a handicap like that, I haven't a very good chance. The one living man who saw it, the man who made the apparatus, and the man who has the instruments that record the experiment—all the one man, and one of the brightest little boys loose. Now what miracle is it you want?"

"Could I help it? It wouldn't have done me—that is us—any good if he had stayed with the University would it?"

"No, but if you'd had the brains God gave little red ants, you could have gotten something for yourself by offering him a *real* reward. But when you turned him loose on the world——"

"But let's stop this and see what we know. He had some of the high-tension generators such as they were using at M.I.T. back in '30, larger of course, and better, but the same idea. This——" he stared at the photograph Nestor had tossed him, "is evidently a quartz tube, with the electrodes in it. How'd he turn the voltage into them—it takes a tricky switch to handle 25,000,000 volts?"

"I don't know, that's something you'll have to figure out. He was going to patent that," said Nestor.

"That's all right then, he'll have given the data to the University. He invented and perfected it while he was with them, and he'll be fool enough to turn it over even though you did discharge him.

"Then the Sanderson tube apparently—ah here it is. Between the big magnets. Anything special about them—no I guess not. Just unusually powerful.

"Lord—Nestor, get on that phone quick, and corner every existing Sanderson tube. If he needs them, he'll be held up forever, if we have all the tubes going!"

"That's an idea—that's helpful!" Nestor turned to the telephone, and in five minutes had the laboratory cornering the only other perfect vacuum on Earth. There was a ship preparing to leave for the Moon with a large expedition, but it would be a year or more before they'd be back, and by that time the battle would have been won—or lost. Their tubes wouldn't help Warren any.

"Why did he need one?" asked Nestor.

"Matter you imbecile—destruction of matter. He can't start that in the midst of matter and not have it blow up everything within miles of the place. He has to have a perfect absence of matter."

"Somebody told me that he had an iron wire in there," objected Nestor.

"Certainly, I know it. There were twelve tubes, one had a platinum wire, one had iron, one had gold, and so on. And they all had platinum electrodes. But the question is did he use that iron wire? Or was it just there? I think he used it because of the magnets—and there isn't another tube with iron in existence—damn!" The physicist looked at the picture thoughtfully and ruffled his hair. "Well, he can't get it either. But he may not need it now."

"I—eh—wonder if we couldn't—eh-buy the data and instruments from—somebody?" suggested Nestor nervously.

"Yes, I thought of stealing them too," returned Atkill frankly. "It would be much easier to say what you mean." He smiled pleasantly at the sharp-faced old man. "But I don't think it will be easy. Putney's no fool, and neither is my revered colleague, Warren. I'll bet they have so many ultra-violet beam thief-detectors around there that you can't wiggle an eye-brow without starting a siren. We'll find out. His men all live there, so we can't get at them to give us a few hints."

"I believe a man named Wilson comes to town occasionally for supplies. He has one of our transport planes."

"We might try him. I don't know him, what's he like?"

"He's about fifty, slightly grey, rather stoop-shouldered, and always looks disappointed," replied Nestor thoughtfully.

"Thumb-nail directory. Excellent, he won't be disappointed longer. I'll see him. In the meantime——"

He was out of the office before Nestor could say anything further. Nestor wanted him to sign a contract. He hadn't had a chance to talk to him, about that. But neither was Atkill satisfied, and he was back as suddenly as he had left.

"By the way, I want one hundred thousand win or loose, and ten million dollars down if I succeed before Warren," he announced.

"What! Ten Millions! Get out! You won't have a sniff!" Nestor cried. He meant to roar it, but his voice was too high-pitched to roar effectively.

"And whom will you get instead?" asked Atkill, smiling pleasantly," and likewise what will I do with the information I already have?"

"Nothing!" snapped Nestor.

"Plenty," replied Atkill gently. "I'll sign a contract with you at that figure.

Half an hour later he did, and went off to talk with the apparatus mechanics from the University who had arrived in the meantime. He started them at once building a static generator of the necessary power. Then he took the nearest moving platform, and headed East across the city. Twenty minutes later he was inquiring among the speakeasies selling the illegal 10% drinks. He had several that were considerably over that figure, met several old acquaintances, and finally found the man he wanted.

Joe Keller was not a prepossessing figure. He was small, about five-feet-three in height, and weighed less than 130 pounds. His eyes were very black, and never rested long, on the same point, his black hair was constantly falling over his eyes in unruly tangled strands. A stubble of two-day beard covered his cheeks and his thin, weak jaw. His clothes had fitted perfectly, but they were mussed and wrinkled now.

"'Lo, Atty. Whatcha wan'?" Keller's lips were permanently glued together, and seemed never to move, only the cigarette, at one corner of his thin, straight mouth, bobbed slightly, and the trails of smoke waved about in the heavy air of the cheap rented room.

"Little job, Joe. What brings you to this hovel?"

"Sompin' new in the worl'," announced the little man looking with disgust at his surroundings. "I used rubber gloves on a vault, and they hadda thing what ate holes in the rubber. Lef' muh fingers all over the place, an' didn't know it till I took the gloves off. Too damn late then. They're lookin'. I can't do nothin' now."

"No, but your enforced seclusion doesn't prevent your comrades from doing something does it? Why not let them go out, say to the Putney laboratories, and I think they'll find some things there I want. I might pay as much as fifteen grand for them."

Keller sat up with a start. "What things?"

Minutely Atkill described the instruments, and the notes that he wanted. He said they would probably be in some sort of safe, but that might be overcome. A little XY-321 would help too, he intimated, and could be obtained from him. The XY would put anyone in the laboratory building to sleep for three hours, unless he had a special mask, or unless the windows were open. XY required a high concentration but was fairly effective then. Inside a house it was perfect.

"Gotcha. Come 'round tomorra," said Joe Keller.

Atkill pursued his way to the West, and then back to the Nestor offices.

CHAPTER V

IN the big, bare, concrete room a score of men were working at a peculiar apparatus that rose rapidly from the floor. There were two towers capped by great aluminum spheres. Their stilt-like legs were made of fused quartz, and electric motors were being installed at the base of the towers.

In another room, two men were working alone. Warren and Putney, fighting calculations that staggered their abilities, and ideas that staggered their imaginations.

"I think," said Warren, his eyes shining as he stared hard at the latest result, "we aren't going to need a Sanderson tube at all this time. According to that all I need do is vary the L' factor in 254 here slowly, and I won't need a very high vacuum. Shall we try it?"

"We won't try it any other way," Putney reminded him sourly. "Nestor beat us to it on the Sanderson tubes, as you know."

Warren laughed happily. *"Stung!* We didn't need 'em. But we *do* need those static generators there. We can control the thing now, we know how it can be controlled, and we can draw power from that energy center in the form we want here once it's started, and after that we'll never need to worry! Except to find other facts about it's properties.

"Lord! Putney—these sheets—they hold the secret of the energy man has sought since the atom was discovered! Before us lie the equations that are the key to the infinite energy, the energy that will banish work from earth! And banish distance too! I'm sure this field here represents the annihilation of the gravity-curvature in space!" he exclaimed, pointing to a brief expression that represented in fact the second great secret.

"But, Putt, these others, these things that suddenly become irreducible and immutable, these end-equations when we attack one set of unknowns with given values. Some I recognize; here's the Planck formula, derived from space-curvatures! Here's magnetic forces, here electrostatic fields—but man, what *is* this one? It's like nothing I know, and these others—here's a formula for creating vibrational fields in space with any period of vibration .up to the limiting period of Millikan rays Can we try these?"

"We can try them—with an automatic machine," replied Putney, "when the machine is a hundred million miles from earth."

"I think that'd be the best idea. Well, it's dark now, and time for us to stop."

They went at last for supper, and then after a brief talk on ways and means of using any power, they turned in.

It was well into the night when Warren leaped out of bed with a cry of surprise and pain. Something had stung him, and for a moment he did not know what it was. A similar muffled cry came through the wall from Putney's room an instant later, and Warren, now wide awake, smiled. The thick walls stopped most of the sound, but he could guess what Putney was doing. The capacitance alarm signal had warned them that some one was approaching the fence, and brought them out of bed with a jump.

As the mild shocking current wakened them, the room lights were turned on automatically.

"Putt—how many are there?" asked Warren as he came into Putney's room. There was a small television set here, and the screen was glowing brightly, but a peculiar colorless and misty scene was represented. The screen was portraying the section of the fence that had been affected. Some one was attempting to approach unseen. It seemed ridiculous to see the man crouching here and there, and peering over stones and skulking in non-existent shadows. Powerful lights were flooding the grounds with *'brilliant'* ultra-violet beams. They were so short as to be beyond vision, but so long as to have very slight flourescent effects, and the three men were utterly ignorant of the blazing lights!

"Shall we let them in?" asked Putney.

"Why not?" asked Warren with a laugh. "They're trying the gate!"

Putney had pushed the secondary alarm that brought the men to his room, and they were appearing now with pistols and rifles, clad in pajamas or hastily donned trousers.

"We're letting 'em into the grounds," explained Putney as the men stared at the screen. "They'll hit one of the ultra beams sure, and start a siren howling. If they don't run for it then, especially when the visible light strikes them, I miss my guess."

"They're through," whispered some one.

"They cut the lock out with an atomic hydrogen flame."

The three separated. One stayed at the gate, holding it open against the spring that tended to close it, a revolver in one hand. The other two started softly for the house.

"They'll hit the arbor-hangar beam," estimated Kennet, the laboratory electrical apparatus specialist.

"The stone-pile inductance will spot them first," contended Wheeler, chief chemist.

The argument was interrupted by a sudden loud clicking from the master boards behind the screen. Suddenly a brilliant white pencil appeared on the screen spotting the two men and simultaneously a horrific wail shrieked from a huge siren. The three men froze instantaneously, then the two turned and beat a hasty retreat.

Putney had adjusted something before him. Now he threw a switch. The man at the gate gave a cry of pain and bounded back from the fence. The released gate suddenly swung to with a clang. It could not lock, however. The two running men hit the fence about the same time, and they too bounced back with a cry of pain. The fence was charged.

Putney threw a second switch with a grin, then a third. As he threw the second, the fence suddenly began to spit long streamers of flame, and miniature lightning bolts reached out, lapping at the ground and streaming up to the heavens.

The last switch had connected a microphone, and now as the wail of the siren died protestingly into silence, a monstrous voice issued from speakers on the laboratory.

"I would advise you to refrain from assaulting the fence. It might bear unhappy consequences. May I invite you gentlemen into the laboratory? If you will go to the spot of light thrown by the searchlight, you will be directed along the path."

The men walked sullenly to the light. Three unhappy, shabby looking specimens of humanity they were. Presently they were instructed to lay down their weapons, and proceed to the house without armaments.

"The reception committee decided to meet you here instead of at the gate," smiled Putney as the three came into the room, heavily guarded.

"What did we touch off?" growled the least washed of the three.

"Well, in the first place, when you approached the fence, the alarm got us out of bed, and turned on the flood lights," began Warren.

"Open-space!" sneered the leader, "We"d a' seen lights an' beat it."

"Look out—the entire grounds are flood-lighted," replied Putney waving to the screen, and the dark window. "Only it's dark light."

The men looked puzzled. They also looked unhappy.

"What did you men come here for?" demanded Warren.

"See if we c'u'd get yah and the fly-cops outta bed."

"I think they don't mean to answer, Putt," said Warren soberly, turning to his friend. "We'd better take them down to the laboratory and the infra-compressor till they become more talkative."

A gleam of laughter came into Putney's eyes. "Why not start them on the vibrator?"

"All right. Take 'em down, men." Three very worried crooks heavily guarded by ten husky scientist-mechanics were taken down to the laboratory.

"I don't think it's fair to use the vibrator on 'em without giving 'em another chance to talk." Kennet turned a compassionate eye on the invaders.

"Oh, I dunno. They knew what was comin' when they came here, and besides, it doesn't always cripple them. I remember the first time they used it the thing broke down about fifteen seconds, and the guy could walk within two weeks."

"Hey, guy, wat is dis ting?" asked the smallest of the captives. His voice was very hard—and slightly strained.

"Well, they attach electric things to your arms and legs," invented Kennet rapidly, "and they turn on a current that sorta slowly fires you inside, and makes you jerk and vibrate so your bones come out of the joints, and—but you'll see it pretty soon." Again that compassionate eye swept them.

They reached the main laboratory door, and Kennet told the others to hold them here while he went in. In a moment Putney and Warren appeared, and rapidly Kennet sketched his invention.

Ten minutes later the captives were brought in. A heavy wooden chair painted a glossy black was set beside a huge mass of compact apparatus. As they entered Putney threw a switch, and with a tremendous crackling, sparks five feet long began leaping from one contact to another. The humming deepened, and the sparks became steady roaring flame. Heavy chains hung over the chair, and some great thick cables stretched from the apparatus, ending in straps of soft copper.

"Put the big one in it first," ordered Warren, cocking his head and looking at him. "He'll last longer."

The big one attempted to resist, but was soon seated and chained in the great wooden, straight backed chair. Close behind his ears was that dull, powerful hum, and the roar and snap of vicious sparks that weirdly lit the laboratory with a flickering blue flame.

"Say, Warren, why not give the guy another chance before you start. He'll be crippled afterwards and may not be able to talk for a while?" suggested Kennet.

"I—I'll talk—I'll talk," agreed the man in his fright.

Accompanied by the hum and the crackle of sparks, lit by their flickering flame, the man talked fast and he talked truthfully. He didn't like the feel of heavy copper bands on his wrists, and the sound of snapping sparks. His account was detailed and vivid.

He had been sent to get any papers or notes he could find about the study, a map of which he had been given. Meanwhile his companion would attempt to locate and abstract the instruments that Atkill had described. They were to be taken to a certain junk shop, where some one would call for them. That was all he knew. The others ardently agreed.

"What'll we do with 'em?" asked Kennet finally when Warren had asked all the questions he wanted.

"Oh, send them back. We haven't any use for them."

It was three hours later when "Sporty" Cantoli reported to Joe Keller, announcing that his three men had come back badly scared, and convinced that they had escaped by a narrow margin from the fiends of hell. They had told everything they knew, and described vividly the torture they had undergone. Sporty reported he had not succeeded in getting anyone else to do the job.

CHAPTER VI

"HELLO, Gramps," grinned Atkill as he came into the sedate, carefully furnished office of Thaddeus Nestor, "I've been making inquiries, and a friend of mine tried to steal those things, or have them stolen. Three men went, but Putney's no fool, as I said, and he had the whole place lit up with ultra-violet floodlights, and the men didn't even know they were walking under brilliant lights. They watched my friends come across the yard, and finally captured them. They've wired the big fence with A.C. evidently, for when they touched it they just bounced off again. Looks as though we'll have to work through Wilson if at all. Maybe he can give us some plans of the fortifications."

"In the first place," Nestor snapped irritably, "I'm not your grandfather—praise the good Lord—and in the second place I don't like this sending thieves. Did they tell anything?"

"Did they talk?" Atkill smiled faintly. "Did you think Putney wouldn't make them? He strapped 'em in a big wooden chair and set up a Tesla coil behind their ears. Loud noises, big sparks, spectacular display —and heavy copper conductors strapped on their wrists. I'll bet they talked so fast a dictaphone couldn't keep up." Atkill smiled faintly. "But don't worry, they didn't know anything anyway—or they'd have had the sense to carry a flourescent screen of some sort to warn them. I asked a friend and he asked a friend of his and the friend of his confidentially told a friend of his, who sent three of his men. Besides, Putney knew who sent them without asking, anyway. Nobody else wanted the junk."

"Well then, see the trouble you've got us into at the start!" wailed Nestor. "What can we do?"

"What can they do?" laughed the physicist. "They can't prove a thing. As a matter of fact they have made it impossible to send any of Joe Keller's friends. The whole gang is so scared now they wouldn't talk about it above whispers. I've got to hand it to that boy, Putney. Police protection wouldn't stop those crooks, but the 'muscle' they've got now stops every one of them."

"'Muscle'? What's that?" Nestor inquired blankly.

"Reputation for unpleasant happenings." Atkill smiled engagingly. "In the meantime I've made some progress. My apparatus is started. And I think I know what Warren was trying to do."

"What?"

"Transmutation."

"Yes, of course. Is that the best your famous brain can do? Anyone over at the University could have told you."

"Yes, that's the best I can do right now. You ask one of your University friends what Warren's theory of transmutation was. If he can't tell you, I will." Atkill started for the door, and called over his shoulder as he left, "But it doesn't work that way, so we can't make gold. I'm going to work."

Nestor looked suddenly interested, as Atkill mentioned transmutation, but his face fell as he was assured it wouldn't work. He growled some unintelligible remark, then picked up his desk telephone, and called a number at the University. Presently he was speaking to Professor William Boyd.

"Hello, Professor Boyd?"

"Yes, is this Mr. Nestor?"

"Right. Say, do you know what Warren was working on when he ruined that apparatus?"

"It wasn't Warren who ruined the apparatus, Mr. Nestor, but his assistant, Blamen. But they were working on the transmutation of the atom. He hoped to change the nuclear structure."

"Uhuh, so I heard. Do you happen to know what this hyp—hypothenuse was?"

"I can't say, he didn't tell anyone. I'm sorry, but why don't you ask him?"

Nestor growled, and hung up, and Boyd left the telephone with a gesture of distaste.

Atkill had found out where Wilson usually ate when he was in town for purchasing supplies, and had set a man to watch for him on his next trip into the city. Nearly a week went by, and Atkill was growing nervous. His apparatus had been finished, as best he could make it, and the Sanderson tube connected. However, it had a nickel wire instead of the iron wire Warren had used, and he was not at all sure what his results would be. Two tentative, low-voltage discharges in the tube had merely resulted in a peculiar feeling of strain in the laboratory, a feeling of some terrific jerk.

The mechanics had assisted him in making his apparatus, and had directed the work really, for they had seen the original mechanism Warren used in his successful, if not over-successful experiment. But they did not know that Warren had sent a current through the little iron wire, and Atkill did not guess this, for though the filaments had been sealed in all the tubes, they were practically never used, there was so seldom any reason for them. Sanderson had put them there in case they should be wanted, for it would be impossible to insert them after the tube was brought to earth.

That, and the fact that Atkill was afraid, with reason, to try any high voltage on his tube, made his experiments unsuccessful. Further, his magnets were not properly arranged. Warren had changed them after the photograph Atkill worked from had been taken.

But when at last his scout reported that Wilson was entering the little restaurant, Atkill left his laboratory at once and hurried over to meet the little man.

He found him seated in one of the small private booths, a waiter hovering near. It was one of the old-fashioned restaurants where waiters served the customers, as Atkill knew. This particular waiter was in his pay, however.

Wilson glanced up as Atkill entered. "Dr. Atkill!" he exclaimed as he recognized the famous physicist."

Wilson agreed with Nestor's description. He had a disappointed look. Atkill was anxious to change that.

"Hello Wilson, may I join you?"

"Certainly, Doctor. I didn't think you'd know me, though I naturally knew you."

"Oh, I've seen you around." Atkill's smile was friendly, it seemed to intimate that Wilson was an equal, and a man he was glad to be friendly with. "And then too, I've used that clever little microspectroscope of yours."

Wilson glowed with satisfaction. His one invention, a slight improvement on an existing device, was a thing very dear to him. Atkill had won him over completely.

Half an hour later they left the restaurant the best of friends. Atkill had spread himself to be agreeable, and Wilson had talked a great deal more than he realized. Atkill had a perfect map of the complete defenses of the Putney laboratory, and knew exactly where to find the notes when he got in. However, he decided to send someone else. He couldn't afford to be captured.

"That fence—clever! Bet Warren thought of the capacitance bridge. But we can overcome that with a little patience. A bridge of our own, and a little static apparatus——" Atkill began planning just what sort of a thing would be needed to neutralize the effects of a man's capacity on the fence. He set to work on it soon after he reached the laboratory, and in a few hours had a suitcase that would contain his apparatus, within it the assembled machine was ready for use. He tried it on a metal plate set up against the wall, and the results gave perfect success. He could walk to the plate leisurely, and touch it without so much as disturbing the sensitive capacitance bridge.

He put his apparatus in the office safe, took down his hat, and shrugged on his coat, after carefully washing up. He was smiling contentedly as he walked toward the moving way on Fifth Avenue Third. He threw away his cigarette, and stepped upon the third level escalator, paid his fare, and started toward the information point.

He found Joe in a little cottage on the Palisades. Joe was nattily dressed now, and looking happy. His cottage was entirely automatic, and heavily armed. The police, moreover, were no longer looking for him. He had grown a new set of finger prints.

Joe didn't greet him so enthusiastically this time. The last visit had resulted in rather unhappy consequences for some of his friends. "Hello Atty. Watcha want?" he asked apathetically.

"I'll tell you, Joe. I want to make an offer," began the physicist frankly. "I want a certain job done, it's going to be a bit difficult, perhaps, but it will be worth it to me, and I'll make it worth it to you. I'll not give you any money for it." Joe looked puzzled, but not deeply so. He wasn't really interested, he had an excellent idea what the job was.

"Nah? What then?"

"The Death Ray machine—with sixty charges still in it."

Joe sat up like a spring coming into position. He stared at Atkill sharply, then slumped unhappily. "Now I know it can't be done. What is is? What y're getting at?"

"Oh, Joe, it can be done easily enough—now. You remember that place where those friends of yours went, and came back with tales of all sorts of things—terrible things—? Well, I found out a lot about that place from a man named Wilson, who works there, and Wilson told me all about it. You know, those rats of yours started spouting without so much as a slight burn! They're dirty liars, Joe. Wilson saw it, and he told me that all Warren did was to clamp them in a big wooden chair, and start a spark machine, what we call a Tesla Coil, about as dangerous as a fly-swatter, right behind their ears. It looks bad, and those rats got scared, and talked so fast they couldn't understand all they said. Joe, they squealed without a heavy touch!"

Joe began to be interested; he was very anxious to believe this, and to believe he could win that death ray. "Yuh—how ya' know this Wilson bird ain't lyin'?"

"Joe, he wouldn't. He thought I was his best friend. He was spouting forth the confidences of his dried-up, little heart.

"And he even told me all about the fence, and the other things they have there. Why I can give you a map of how to get in there now, and how to get out again. I'll give you a suitcase that's got a machine in it that will keep you from affecting their traps. You know how an old radio set squeals when you take the shielding off? Well, that's because your hand gets near it, and upsets the balance. That's what they are using, and all we have to do, is to put an electrical shield up, and they'll never know you're there.

"Get three men here, Joe, and I'll show them how to do it. I even know just where the papers I want are."

Joe was succumbing. That Death Ray sounded good, the thing sounded easy now.

"Yeah—but what about that fence? Mike said it kicked like a damn mule?"

"Certainly," replied Atkill. "Tell him to take a good hold on an electric light wire, and see how it feels. Just plain ordinary electricity. Every one of you ought to know that."

"O. K. I ain't tellin' 'em, though. You give 'em orders, an' if they squeal, that's your bad luck," decided Joe.

An hour later Atkill was giving orders, and demonstrations in his laboratory. He didn't mind. He knew that both Warren and Putney knew who it was that was ordering this attack on their papers. So he showed the men that his machine prevented their being detected, showed the film of grey-white paint on the suitcase that flamed greenish when ultraviolet light struck it, and gave them a map of the grounds.

Ten minutes later the three gunmen headed for the New Jersey Monorail.

CHAPTER VII

THE laboratory was lit brilliantly by long grey-white glowing tubes filled with carbon dioxide gas. The glowing tubes gave a light precisely imitating that which streamed in through the great steel-framed windows, casting a pattern of trapazoids on the grey floor. But the grey-white tubes gave no shadows in this place where a shadow might mean an irreparable accident.

The tripod towers were finished, and the great silvery domes glowed under the clear light. There was no quartz tube connecting them now, only the three great magnets and two long rods of aluminum that failed to meet by a few inches, just between the poles of the mighty magnets.

Motors were humming softly, and a half-score of men stared up at the aluminum dome on the left.

"How's it going, Ran?" called Putney. His voice was steady, but inside himself he felt anything but steady. He had tried to argue with Warren, he knew that Warren should not risk his invaluable brain, that some man, whom the world might replace, should take that chance. That was reasonable. But it wasn't right, and he knew it in his heart, when he tried to make Warren agree. Now Warren was in the aluminum dome, and no man on earth could reach him to argue more. He was protected by an enormous and rapidly increasing charge of electricity.

"Sixteen and a quarter million volts," called Warren exultantly, "and rising." Minutes went by and the steady hum of the motors continued, the soft slap-slap-slap of the silken ribbons that carried their charges up, and came down for some more.

"Seventeen million volts!" called Warren. "It'll be seventeen and a half soon. The leakage is almost nothing. Switches ready?"

"Right, Ran," replied Putney steadily.

"Make sure all the electroscopes, both recording and visual are charged, train your bolometers and other instruments. Check up, then for God's sake, get behind that lead screen, and use the periscope."

Swiftly the men checked over a bank of instruments all focused on the little spot of space between the three great magnets. Then they retired behind the heavy, curving sheet of thick lead that sat against one wall. A broad periscope mirror would send the light to them without sending the harmful radiations, for in its path it passed through a four-inch-thick plate of ultra-violet-opaque glass.

Warren watched the instruments before him. The needle of the electro-static voltmeter device was quivering at 17+ now. His swift eyes swept the meters and saw they were all registering correctly. Then at last he stepped into a tiny lead closet built in the center of the aluminum dome. The entire interior was lined with heavy, thick milky glass, save one port of clear glass. There were various meters here, and two long glass rods.

His face was flushed as he saw the voltmeter reach the seventeen and a half mark.

He tripped the green-handled glass rod. There was a wrench, a tautening, and the meter jumped as the magnets went on, and the motors below whined to a stop.

"Here She Goes!" He pushed the second rod. There was a brief flare of light as a bit of iron wire suddenly exploded into brief incandescence, then a sudden terrific wrenching, and a tremendous wave of smashed air as the awful power of seventeen and one-half million volts jumped across a six-inch gap.

Then a second wave came, a wave of flaring, infinitely bright, and almost palpable white energy, a cascade of light that beat down from a tiny point between the great magnets.

Matter was vanishing! Thrown into another space, it was rapidly disintegrating!

There was a sudden whine and screech as motors started, and the magnets lowered rapidly away from the glowing electrodes of the static generator. The point of blazing incandescence followed them, rested between their poles. The crane that supported the magnets swung them swiftly to a powerful machine on the floor. There was a thud as heavy plungers shot home, and a second snap as others shot free. The blazing ball pulsed larger for the briefest fraction of a second, and dived suddenly for the machine. It stopped, and hovered like the white flame of a torch over a small hollow in the top of the black cube of the squat bulk. It shrank, and burned steadily and clearly with a brilliant white light.

"Readings!" called Warren exultantly.

"X-rays—none. Cosmics—none. Ultra-V's, none detectable. All radiation seems to be in the visible, principally in the blue-white range. When first started there was an instantaneous shot of cosmics and others, gamma, X and Ultra-V's, but they damped out instantly. You win, Ran, you win!" called Putney joyously.

Warren appeared suddenly, and slid down the quartz rod to the floor. In an instant he was running toward the squat machine, Putney behind him.

"How long can it last without additional fuel?" asked Putney as they ran.

"God knows, Putt. An hour at least, though. I can't tell how much the magnets captured and how much escaped when it went up in incandescence."

Warren cautiously moved a control. The brilliant ball seemed to expand, but the radiance died down, its color remained, but it was dimmer.

"Can't go lower, it's at the minimum now. Shall I try the fields?"

"Eventually, why not now?" replied Putney soberly.

Warren adjusted several rheostats, and read the meters carefully. Then he threw a heavy switch. The ball of luminescence quivered, and dulled to an orange color. A meter moved, and across the room a huge bar of rustless steel glowed red. Presently a second of the score or more glowed. The ball grew smaller, and under Warren's manipulation turned white once more.

"It works, Putt, it works," Warren almost whispered. In less than a minute the entire grill, of more than twenty heavy steel bars, was glowing bright red over its entire fifteen foot length. The laboratory was swimming in heat, but the men scarcely noticed it.

"Feed it!" urged Putney.

Warren cautiously turned a small button. The ball suddenly quivered and darted down slightly. A line of red, a fine steel wire had appeared in the center of the hollow bowl-like depression it swam upon, and the globe of embodied energy perched on it. The great bars suddenly glowed brighter, white hot, and began to slump swiftly. Only Warren's quick manipulation saved them. A faint hum from the globe of energy seemed the only sound in the room. There was a queer pulsing in the machine before them now.

"It works, Putney, it works all right. I couldn't somehow picture it happening. I could see that it should, I thought it would, but I didn't believe. That's it, Putt. Matter going forever, irrevocably." There was awe in the physicist's voice.

"The question is," Putney reminded him practically, "will it continue to go forever?"

"Let's start, then!"

That was two days before Atkill spoke to Wilson, and for the next three days the men worked constantly, observing, collecting data, then calculating the meaning of the things they saw and the things they were able to do. By the third day a tremendous amount of work had been done, and on the evening of that day the first fire, the Promethean Torch of atomic fires, had been transferred. Now it rested on a tremendous block of solid iron, and set about it were the dozens of instruments that controlled and directed its work. They had learned many things, and done many things.

And Putney was drawing up their patent claims now. Immediately after the fire had been started the men signed a joint statement in the presence of a Notary Public, and the document was post-marked. It proved the date of the discovery.

CHAPTER VIII

THE shadowy men moved cautiously forward over the rough ground. Their autogyro had descended with the engine off, and had made but the faintest rustle, and now they were cursing softly, as branches broke under their feet with the multiple snaps and cracks of light artillery. A city-bred crook in the woods at night is a forlorn creature.

Finally they reached the clearing, many bruises were on their shins, given by unseen rocks that sprang suddenly into a seemingly clear path.

"Any light in the green stuff?" asked Gorilla Mike.

"Nope. That light you can't see isn't on. Must be a hell of a light you can't see. What good does it do 'em anyway.' Course those damn light-beam traps have some sense, but they don't floodlight the place," muttered Shorty.

They approached the fence cautiously, and no sign of the green flame came from their simple detector. Likewise the fence got no impulse from them as they came toward it. Presently Mike used a heavy pair of bolt-clippers, and snipped several wires and rods of steel. He lifted the lock out of the gate bodily, and opened the way. They filed in cautiously, turned abruptly to the left, and followed the fence for nearly seventy-five feet. Then they cautiously set off across the grounds toward the laboratory building, bulking dim against the light grey of the clouds racing across the sky. A bright moon beyond threw a dim radiance on and past them. But they really had little to fear from any natural light, for as Atkill had learned from the too talkative Wilson, Warren was much more willing to trust to the abilities of his electrical and ultra-violet watchers than to those of any human watchers.

The suitcase which had been humming softly suddenly began clicking and humming in jumps and starts. Shorty looked down at it dubiously. Was the thing going wrong now, and leaving them marooned inside the fence? Suddenly he gave a cry of surprise, and pointed to the hitherto invisible streak of dirty-white paint. It was flaming with a blinding brilliance. Atkill had chosen his fluorescent paint well, and it reacted even to the long ultra-violets Warren was usin.

With a curse the men turned to look for the light, to shoot it out. The scene was dark as before. No faintest glimmer lighted the scene. Shorty looked at the signal again and doubted. His eyes told him there was no light. This thing said there was. The suitcase was humming and clicking madly. The thing was broken. If there was light he could see it.

"Hey, are yuh goin' ta stay all night?" demanded Pete Constanti.

"Is this thing working or not?" 'At's wat I wanna know."

"He said yuh couldn't see the light. Let's get out."

"Beat it then," ordered Shorty. The three men turned and raced for the open gate, taking the shortest route. They hadn't gone ten paces before a blinding white beam of light caught them, and held them. Constanti pulled out a long-barreled revolver. He fired twice and the light went out. They ran on desperately now, and then a third spotlight fell on them.

It took time to shoot them out, and there were lights in the laboratory now. But they ran on again, and no more lights struck them. Presently the open gate stood just before them, wedged open by a piece of rock. Shorty dived for it, and as his body started to pass through the gate it seemed to strike something, a something like a very strong sheet of india rubber. There was nothing but empty space there, but Shorty bounced back heavily. He sat down even more heavily, and jumped up with a howl of pain, for there was an outcropping of bare, rough rock here.

The two following him hesitated in amazement, rushed hurriedly forward, and gave low cries of astonishment as their hands felt *it*. It was soft, yet almost as unyielding as a wall of steel padded with thick rubber. An inch it would yield, then it was immovably fixed. Pete Constanti had his long-barreled revolver out in an instant, and he sent three shots whining into the invisible barrier. Each gave a soft whine as it struck, and a second soft whine as it bounced from the barrier as from some marvelous spring. Luckily the bullets had not been aimed straight ahead, but at an angle and they did not return to their sender. They whined away to strike with a distant plop somewhere on a rocky outcrop.

"I wouldn't shoot," said a monstrous voice, "because the bullets will just bounce. Come to the laboratory."

The voice was very loud, and there was a slight mechanical timbre to it. But also there was a cold, deadly tone that made the three think of the tales two other men had brought back from this place of unknown horrors, of invisible walls that bullets merely bounced off, of invisible lights, and incredible and unknowable things that watched your every motion. Like trapped animals they hurled themselves at the barrier. Shorty Grimm hurled the suitcase with its load of batteries and mechanisms at the invisible wall, and it merely fell harmless.

"Come to the laboratory, immediately," the Voice said.

"Wat we gonna do?" quavered an affrighted Gorilla Mike. "You got us inta this, for God's sake get us out."

"We—we better go, I guess," Shorty said in a low voice.

Something pushed him from behind, something soft, but unyielding. With a cry of terror he ran forward, the wall was following them, pushing them. He ran, but not more than ten paces before he struck another of those invisible walls.

It was dark, horribly, weirdly dark, but the suitcase still flamed, and the lights of the laboratory glowed. All he knew was that before and behind were walls, walls that he could not see, and could not break through. Desperately he pounded on them, hurled himself against them. They did not even hurt him. He felt as though he were in some asylum, locked in a padded cell—a padded cell whose walls he could not see.

He began to laugh. Mike and Constanti looked at him with blank, fox-like faces. The laugh was very low at first, just a chuckle. Then more chuckles, then a wild, mad laugh that rang out. His pals could not understand.

Pete hit him and he fell to the ground. Mike looked on uncomprehending. Constanti bent over the fallen figure, and in a minute the man was stirring again.

"'Tanks, Pete. God, it's like a padded cell, Pete. Let's go to dat lab-ra-tory. Maybe they'll let us out."

Anything seemed better than this. They started toward the laboratory, feeling for the wall, but the wall had moved. The Voice spoke again. "The walls move with you. You can move toward the laboratory, but in no other direction."

Presently they stood in the grey-white light that streamed from the laboratory door. Two great towers rose in the room of concrete, two half-dismounted things. They looked bare and ruined, like half-cleaned skeletons. In the center of the room was a great mass of iron, and around it nestled half a dozen mechanisms with long pointers of gleaming silver pointing at a glowing ball that floated unsupported just over the glowing top of the massive iron block. There was a slight depression under it, as though some acid had eaten at it slowly.

A half-score of men stood just within the doorway, looking out at them. Another man was seated beside one of the machines grouped about the central massive block. A tall, powerfully built man, with blond hair and grey eyes. His face was set and looked unpleasant. His fingers were working at controls before him. He looked up at them, and threw back a switch.

"Drop your arms," he ordered.

Half a dozen guns and three heavy knives came into view, to be followed by three slung-shots. Warren looked at them caustically.

"You're cheating," he smiled, but the smile wasn't pleasant.

"Honest—'at's all we got," objected Constanti.

Warren flipped a switch with another unpleasant smile. Constanti let out a howl of pain and snatched at something up his trouser leg, as suddenly Shorty Grimm howled and pulled a tiny automatic from his sleeve. He dropped it beside the knife Constanti had produced.

"Step back from the weapons," ordered Warren, and as they retreated, something shimmered for an instant in the light, and a curtain seemed to roll over the weapons. Warren threw over another switch, and a series of explosions like Chinese firecrackers rang out, then the smoke floated away, and there was a little pool of white-hot, sparkling metal on the smoking ground.

"All right, come in," he ordered. The three gangsters came because they couldn't do anything else.

"Who sent you?" demanded Warren sharply.

"Aw, we ferget," snarled Grimm.

"That's too bad. You like that padded cell you can't see? Or do you like this?" Something flashed around them resembling a sheet of water, and they were standing in the center of a hollow cylinder of milky light.

The light twisted and flowed in swirling currents.

"Touch it—touch it carefully," suggested Warren. "Better, stick your flask into it, and hold the neck with your handkerchief.

Constanti complied. He had whisky that was 85% alcohol in that flask. There was a faint crackling noise as the flask touched the beam, and the cylinder glowed faintly red for an instant, then relapsed to white.

"Enough—don't put your hand in. Drop that flask." Constanti stared at it instead. The flask was dripping moisture. It was white with frost, and drops of a light blue liquid fell from it in slow succession. He dropped it. The solid silver flask broke like glass, and the whisky within was a brown, hard substance that was coated with frost in an instant. It sizzled on the floor, and in a minute was melting and running away.

"Now—I think you have too much space. I'll close the column. If you want to talk—talk."

The milky cylinder began to contract, and as it grew smaller the men within it felt an awful cold come upon them. Their breath began to show, and their ears grew numb. Swiftly the cylinder became smaller, and rapidly it grew colder.

Presently Grimm saw something else above them. It was a great, deep-violet roof, and it seemed to be made up of streamers that fluttered slowly down. It descended, and touched his head. They weren't streamers, they were more of that padded force.

"Atkill—he sent us," wailed Grimm.

Instantly the cold was gone, the milky cylinder sprang back to its original size, and the violet streamers vanished.

"How did you pass the fence?" snapped Warren. A delicious warmth seemed to seep into the chilled men. It was easy to talk and be warm. Nothing could stop this man of unknown things.

"He gave us somethin' in a suitcase. You held it in your han' and the fence didn' spot you."

"Where is it?"

"Down on the grounds. I threw it at the wall, an' it just bounced off it."

"Wait." Warren turned to his instruments. Something fell to the floor with a soft thud behind them, and the men turned. The suitcase lay on its side. "Wrecked," said Warren tersely. "Delicate electrostatic counterpoise, probably, eh Putt?"

"Probably," replied the black-eyed man beside Warren.

"Wat saw us?" asked Shorty.

"Your suitcase protected you against any one of our electro-static detectors, but it couldn't satisfy three at once, and when you were within range of the fence, and of two other detectors, it quit," replied Warren with a grin. "What were you after."

Briefly Grimm told him. Warren looked at Putney, and then at Grimm. He wrote hastily on a sheet of note paper, signed it, and passed it to Putney. He too read, then signed. "Good idea," was all he said.

"Take this to Atkill with our compliments. Where is your plane?" said Warren, passing the sheet in a sealed envelope to Grimm.

Grimm told him. Then something gripped him, something like the soft, impenetrable wall, but different in that it held him like a monstrous hand. It lifted him, and he shot through the door, turned, and shot down the hill, over the fence, and an instant later was standing beside the plane. The force released him, and was gone. A moment later the man, his nerves still quivering, saw Constanti flying through the air, to land gently twelve feet nearer a huge tree. Constanti stumbled, gave a low moan, and stood up. "Madre de Dios!" he groaned.

They watched something black hurtle through the air. It was headed exactly for the huge tree. A shrill scream of fear rang out as Gorilla Mike saw his end at hand. The force that carried him bore him toward the tree, and suddenly there was a crash, the great tree snapped over—and fell majestically away from the three men and the machine.

Gorilla Mike scrambled to his feet hysterically crying, unhurt. The forces were gone.

But it was an hour before their nerves quieted sufficiently to let one of them take the 'gyro aloft, and toward New York.

CHAPTER IX

THE dull grey light of dawn was just creeping in through the windows. Atkill was sitting on the edge of his bed, and there was an expensive English cigarette between his lips. Shorty Grimm sat across the table from him. His face was white, his hands trembled and his breath reeked of cheap whisky. There was a bottle of Atkill's private and very fine stock on the table, and a half empty glass between it and an overflowing ash tray. Grimm's eyes held a look of blank horror and terror.

"Gawd, Atty, I saw it. I saw Mike flyin' through the air, then I saw him fly inta that tree—then the tree fell down, and there was Mike, cryin' like a baby, and laughin' somethin' awful. A man ain't meant to laugh that way.

"But that Thing seemed all soft, like a rubber sponge, but it knocked that tree down so easy it didn't even jar Mike. And that white thing—like a big cold ghost all around us, and we could see through it like a fog. It was so cold it froze Pete's whisky, and that's good strong stuff he gets."

Atkill laughed, a queer, little, strained laugh. "It was a lot colder than that, I suspect. Tell me, it turned white? But did it get wet, and—water—blue water drip from it?"

"Yeah," replied Shorty amazed, "how'd you know?"

"It wasn't water, it was air. I didn't know—I guessed."

"But—but air ain't like water. It ain't ever a liquid," objected the bewildered gangster.

"It is," replied Atkill patiently, "when it gets cold enough. You probably saw the coldest flask that ever existed. It probably didn't have any heat at all—absolute zero." He ruminated silently. Then stretched and stood up.

"Sorry, Shorty, but I guess you didn't get hurt. I didn't think he would hurt you. He should have wiped you out, of course. I'll bet he could have put you where they'd never find you within the next hundred million years," he smiled unpleasantly, and Grimm looked more unhealthy than ever. "He could probably have put you on the moon without trying, or hidden you in space.

"It's no use though now, Shorty. He's found the secret. You know that ball of white fire you saw on the iron block? That little ball of fire was giving off more power—could give more power than all the rest of the power plants on earth combined. That ball of fire could have stopped this planet, and made it turn around and go the other way. It could have lifted this whole city off the map, and put it down in the middle of the Pacific Ocean, just as easily as it lifted you and put you down in the middle of a field, or the middle of a tree for that matter. There's only one thing that could stop that little ball of fire," he went on, more to himself than to Grimm.

"Wat's that?" asked the awed listener.

"Another one like it, only bigger, Shorty—another one like it." He smiled to himself.

"You failed—but here's a grand for your trouble and —unpleasant experiences." He handed a bill to the man, and waved him out. Nestor would pay the expenses.

He turned out the light, and went back to bed.

* * * * *

"Hello, Nestor. Got news for you." said Atkill as he came into the sedately luxurious office.

Nestor looked up eagerly, his shrewd eyes snapping. "What?"

"I sent some men to steal the data from the Putney place, you know. They came back last night, or rather this morning, and told a wild tale about being surrounded by walls they couldn't see, that pistol-bullets bounced off of like rubber balls, that let light through, but wouldn't let them out. Then they told me about a ghostly, white cylinder that nearly froze them, and about a ball of fire the size of a basket-ball resting on a block of iron. And they said something soft picked them up and hustled them out of the laboratory, and flew across the field with them. It set one of them down in the middle of a tree—after knocking down the tree without jarring the man.

"And he brought me this." Atkill extended the note Warren had sent.

"He's done it?" asked Nestor sharply.

"Obviously." Atkill returned contemptuously.

The note was as follows:

"Messrs, Atkill and Nestor:

> We feel it advisable to announce our success in our experiments to you first of all men. It will not be worth while to make further attempts to steal the data you are attempting to get. You will find full particulars in the patent specification and claims filed three days ago.
>
> "We don't like to make threats, but we wish to advise you that this laboratory is adequately protected.
>
> Compliments to Atkill on his clever electrostatic counterbalance.
>
> Randolph T. Warren
> Donald M. Putney.

Nestor snorted. Then he sat back sorrowfully. "It looks," he decided, "as though that ungrateful fool wins."

"He certainly isn't a fool," smiled Atkill. "And I don't think him particularly ungrateful. You had him fired so he'd be of more use to you.

"And I thank him for that compliment. It *was* a clever device. One of the cleverest dodges ever devised probably."

"Well, you may agree with him," Nestor retorted angrily," but at any rate you're through. Get out."

"One hundred thousand dollars first, please." Atkill replied smoothly.

"Huh? Why? You didn't do anything but cost money. You go read your contract, and you'll see that if you loose you get $100,000 minus the cost of apparatus, which was—let me see—seventy-five thousand so far." Nestor sat back with an expression such as that worn by a cat after the untimely demise of the canary.

Atkill looked at him coldly, very coldly, and a flame of murder, of equally cold murder, lurked in his eyes.

"Oh, is that it? Very clever." He paused, and the look in his eyes changed to rapid calculation.

"All right, will you let me leave *my* apparatus there in your laboratory until I have that twenty-five thousand in my bank?"

"Certainly," smirked Nestor, "I'll give you a check."

Twenty minutes later Atkill left with a check for twenty-five thousand dollars, which he had certified as soon as he reached the bank. He put it in his safety deposit box, and went on in the even tenor of his ways. He had Nestor's written agreement to leave the apparatus as it was till he had his twenty-five thousand in the bank. He also had Nestor's check, which could not be stopped, and proved nothing till he cashed it.

Atkill had received no money. And he would receive none till Nestor paid him the rest of his fee, in order that the bulky apparatus might be moved from a costly laboratory, which was now thoroughly useless.

Nestor on the other hand, felt that that unhappy business was well completed, so far as it touched Atkill. On the other hand, he was *not* through. He began doing some deep and serious thinking. Presently he called up William J. Fordham, President of the Atlantic Power Companies. He also arranged to have Arthur Benholt, of Central States Power and Thomas Ringman of Pacific Coast Power Lines on the wire.

"Gentlemen, this is Thaddeus Nestor speaking, and I have something of great importance to tell you. It is too important to trust to the wire. Let us all meet in St. Louis to-morrow noon. Is that satisfactory?

"What is the basis of this important item?" asked Fordham cautiously.

"An invention, an invention that will wreck every power company, every air line, every railroad and steamship line, every industry in the world! I have been assured by competent men that it would ruin every power company within a week of its announcement. It must be stopped."

"We'll be these," said Fordham slowly. The others agreed, and began crossing off appointments on memo slips.

Nestor's assurances had weight.

CHAPTER X

"WE are all here now, Nestor. And all very anxious to hear what you have to say. What is this invention that can have such effects?" demanded Fordham. The big, gray-haired ruddy-faced man looked nervous, and worried.

"Atomic energy." said Nestor shortly. The three men started, and gasped slightly.

"Are you sure?" asked Ringman in a slightly unsteady voice.

"Atkill was working on it for me, and in the meantime Warren did the job. Three of my men brought back tales of some of the things he could do." Briefly he told them of Atkill's report, and the men's stories.

There was a long silence as the men thought of the meaning of this.

"Then—then he can put us out of business." said Benholt heavily.

"Without even a battle. He can sell mega-watt hours for what you sell watt hours. He can make airships that don't use engines, just tiny spots of that fire. We're ruined if that invention is sold. That is, if it is sold by him." he added with a sly look.

"Yes, if he sold it to some company—"

"But on the other hand," Nestor interrupted, "If he should unfortunately die, why perhaps his heirs would not display his acumen. He has no brother, nor sister, no near relative. I have investigated, and the only relative I have located is a second cousin once-removed. He is a teller in a country bank, and his name is—James Oswell Jessop. Mr. Jessop has a wife and three children, he is about forty-five years of age, and I am sure, would consider fifty thousand an enormous fortune."

"If Pacific Coast Power Lines fail, I loose three hundred millions, and the other investors loose another billion and three quarters," said Ringman. His voice was shaky. The temptation was great—and he knew what Nestor meant.

"What could we do with the patent if we had it, that we could not do by buying it?" demanded Fordham.

"Cover it up." snapped Nestor.

"Why couldn't we do the same if we bought it?"

"Do you think for a second he'd let you? He'd sell you the power rights, yes, but he wouldn't sell you the other rights that it involves."

"Why not buy it and use it ourselves?" asked Benholt doubtfully.

"Because," said Nestor with a deadly quiet in his voice, "Because there won't be any power companies after that is on the market. Don't you fools see that they won't need an outside plant for generating power? Don't you see that trains, factories, small towns, apartments, and perhaps homes even, will simply use an individual plant. Why is a big plant used today? Because it's near a waterfall, near a coal mine or near a number of big towns, and because a big plant is more efficient than a small one. And because they require skilled supervision.

"Atkill says this can be developed so that it will need no supervision. And it certainly needs *no* wisdom to see that no fuel is needed save a tiny bit of matter, iron evidently. Who cares for efficiency? Why worry?

"Warren won't sell power—he'll sell power plants!

"Now, do you see why you can't let that invention become public.

"And where do you come in, Nestor?" asked Fordham softly.

"He'd ruin my aircraft business in an instant; he'd ruin every industry I have a touch in, except the iron and steel industry.

"And I couldn't buy him over before he completed his discovery."

Fordham smiled bleakly. "And what would you have done had you been able to get it?" he asked.

"Used it myself, naturally." replied Nestor. "And what would you have done in my position?" He looked shrewdly, and frankly at the bigger, younger man.

"Well, what are we going to do?" asked Ringman, raising his head from his hands.

"Wait. I think that we will know as soon as Warren gets his patents filed. At present he has only a half dozen sealed envelopes of Process Discovery. When he's completed his research and not before, he'll turn in his patents. In case we could discover anything, his filed patents would prevent our using it.

"On the other hand, if we wait, and he were—to die—why we could buy the completed patents from his heir, Jessop in this case."

"And what do you want of us?" demanded Fordham.

"Your help." replied Nestor. Then rapidly he outlined his plan to them.

* * * * *

"Lord, Putt, there're more things, more angles to this than a fly has eyes. We certainly can't test all these things here on earth. The explosive for instance—the disintegrating field. Half a dozen of these things can't possibly be tested here on earth, and the only answer is —go try it on an asteroid. We'll have to build a flying laboratory." said Warren.

"I agree—for more reasons than one. Now what sort of a thing had you in mind?"

"A dirigible-shaped ship, about two hundred feet long, and perhaps thirty-five feet diameter. We'd mount several big energy centers in the exact middle of the ship. We have found the gravity-field secret, and can use that. The walls of the ship could be made of beryllium, perhaps eight inches thick for emergencies—"

"Beryllium—eight inches for emergencies" exclaimed Putney. "Lord, beryllium is so—I forget. It's impossible to buy, but we can make all we need. All we need is a sufficient amount of some other element! But then, eight inches for emergencies! That's no more than a good wall in space." protested Putney.

"Uhuh—that's why it's an emergency fixture. We won't use material walls, we'll keep a permanent wall of force. The X-573 field. Meteors—nothing will pass that."

"Right. Much better. And then how do we drive it?"

"Well, we could drive it ahead by simply moving the wall along. Since that is determined in space by the coordinates of our control, all we'd have to do is advance them. But why not use the gravity-field as well? For high accelerations it would be a lot better. We couldn't use it here on earth, or on any planet, but once free, we'd get a lot more acceleration, because we wouldn't feel it."*

"Good. Now those ideas—say I like this whole thing. We'll design that ship here and now, and Hultman can put the thing on paper for us."

They started then to plan the ship. "Prometheus" they called it, for it bore the torch of the everlasting fire that would light man's way henceforth.

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* The wall of force known as field X-573 was created at any point the operator wished, by merely setting the controls. The coordinates so selected ruled the placing of the field in space. Thus by placing it at one point, and advancing the controls gradually, it simply moved through space, any force its movement applied, reacting directly on space, not on its source of energy. This apparent "lifting by the bootstraps" seems to defy the third law of motion, but actually the reaction is taken up by space, by the intertwined fields of a million millions suns. Similarly, if the gravitational field was fixed in space, then the ship would fall into it, and changing its coordinates would move it along as did the force field.

END OF PART I

* * *

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a text book. Moreover, most of the stories are written in a popular vein, making it possible for anyone to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge of science.

1. What is the character of the mesozoic age? (See page 1068.)
2. What is the Calaveras skull and what was it supposed to disclose? (See page 1069.)
3. What basis is there for arriving at the age of underground, prehistoric remains? (See page 1069.)
4. What is a fumarole? (See page 1075.)
5. What product is obtained from cycad palms? (See page 1076.)
6. Who was Poseidon? (See page 1087.)
7. Give a theory of what would happen if matter were projected out of space? (See page 1101.)
8. How may we define hyperspace? (See page 1101.)
9. Why could the word "brilliant" not be literally applied to ultra-violet "light beams"? (See page 1104.)
10. What effect might such beams have that would affect visibility? (See page 1104.)
11. What appliance could be used to warn an observer of the presence of ultra-violet "light"? (See page 1105.)
12. What is the composition of matter, the product of smelting operations, as found in ancient Mexico remains? (See page 1113.)
13. What is the meaning of palaeolithic? (See page 1118.)
14. Write the reaction for the decomposition of ammonium chlorides giving ammonium, assuming its possibility? (See page 1124.)
15. How is the electric resistance of a conductor affected by temperature? (See page 1124.)
16. What is Charles' Law? (See page 1124.)
17. What is the temperature of liquefaction of helium? (See page 1124.)
18. What is the relative weight of the nucleus, the proton, of the hydrogen atom? (See page 1128.)
19. What holds the electrons in an atom in their orbits? (See page 1128.)
20. What is the simplest atom known? (See page 1128.)

In The Scarlet Star

By Jack Williamson

Author of "The Lady of Light," "The Stone from the Green Star," etc.

THIS story, by one who is justly called a favorite author, describes life in the stone age, when man was in the most primitive state of advance. It tells of the discovery of fire and of the combats of the herculean ancestors of our present race.

Illustrated by MOREY

ON a hot afternoon in June, 1930, I was standing in front of a newsstand in El Paso, Texas, examining the latest copy of a magazine of science fiction.

"Like 'em?" a pleasant voice inquired at my elbow.

"Yes," I said. "Merritt and Wells and——"

I caught myself, looked up swiftly to see who had accosted me. A young man stood beside me. Tall and well built he was, in shirt sleeves. His black trousers and cheap shoes had seen better days. But his eyes were blue and brilliant with strange enthusiasm.

He stood still, smiling a little, while I measured him.

"Beg your pardon," he said. "I read 'em myself. It struck me we were kindred spirits."

"Glad you spoke. I haven't anything to do. And I like to talk science fiction. If you like, we can go somewhere to lunch."

There was something about his face that suggested my words; and a quick gleam in his brilliant eyes replied to them. But he flushed a little, spoke quickly,

"No. Thanks. I've just eaten."

"I was going. We can talk as we eat——"

He weakened visibly, collapsed.

"All right. I'll come. A fifteen cent feed at that Coney Island joint—anyhow——"

We found a promising place, dark and cool, with electric fans whining overhead. My new acquaintance did his best to conceal impatience, while we waited for two full orders. I discovered that he thought Wells and Verne a bit old-fashioned and dry, that he had vastly enjoyed Merritt's story, "The Moon Pool."

When the soup and roast beef came, with coffee and pie and what-not along with it all, conversation lagged. He ate with the gusto of one who has been for some time practising economy in his diet. At last he pushed back his cleaned plate, rose, flushing a little again.

"You know, this is darned good of you, Mr.——"

"Stewart. John Stewart. And it's quite all right. Glad I met you."

"My name's Jimmy Miles," he said as we strolled back out into the baking street. "Sort of roving electrical engineer. No college. But I've worked in power houses—nineteen of 'em, to be exact.

"And if you're interested, I've got something to show you—pay you for——"

"Don't worry about the dinner!" I said, "I write a little, and am interested in characters."

"Business proposition, eh?" He laughed. "Well, this might give you a plot. Strange enough!"

"Of course I want to hear it. What is it?"

"Well, to begin at the first, I came here a couple of months ago. Failed to land any job down at the light-plant. Should have been drifting on—I had enough to carry me on till I found something. But one day I got to looking in a pawnshop window——" He paused.

"Yes, they fascinate me," he went on. "Every bright, useless article under the sun. Diamonds and watches and jewelry. Pistols and knives. Kodaks and phonographs. Probably a thrilling story for every one of them!

"I FOUND a strange thing in that window. Sort of a crystal. Looked like red glass, or ruby. Star-shaped. A big thing, heavy, nearly three feet across. I'd never seen anything like it—from what I know of chemistry, there isn't any known substance that crystallizes in five-pointed stars.

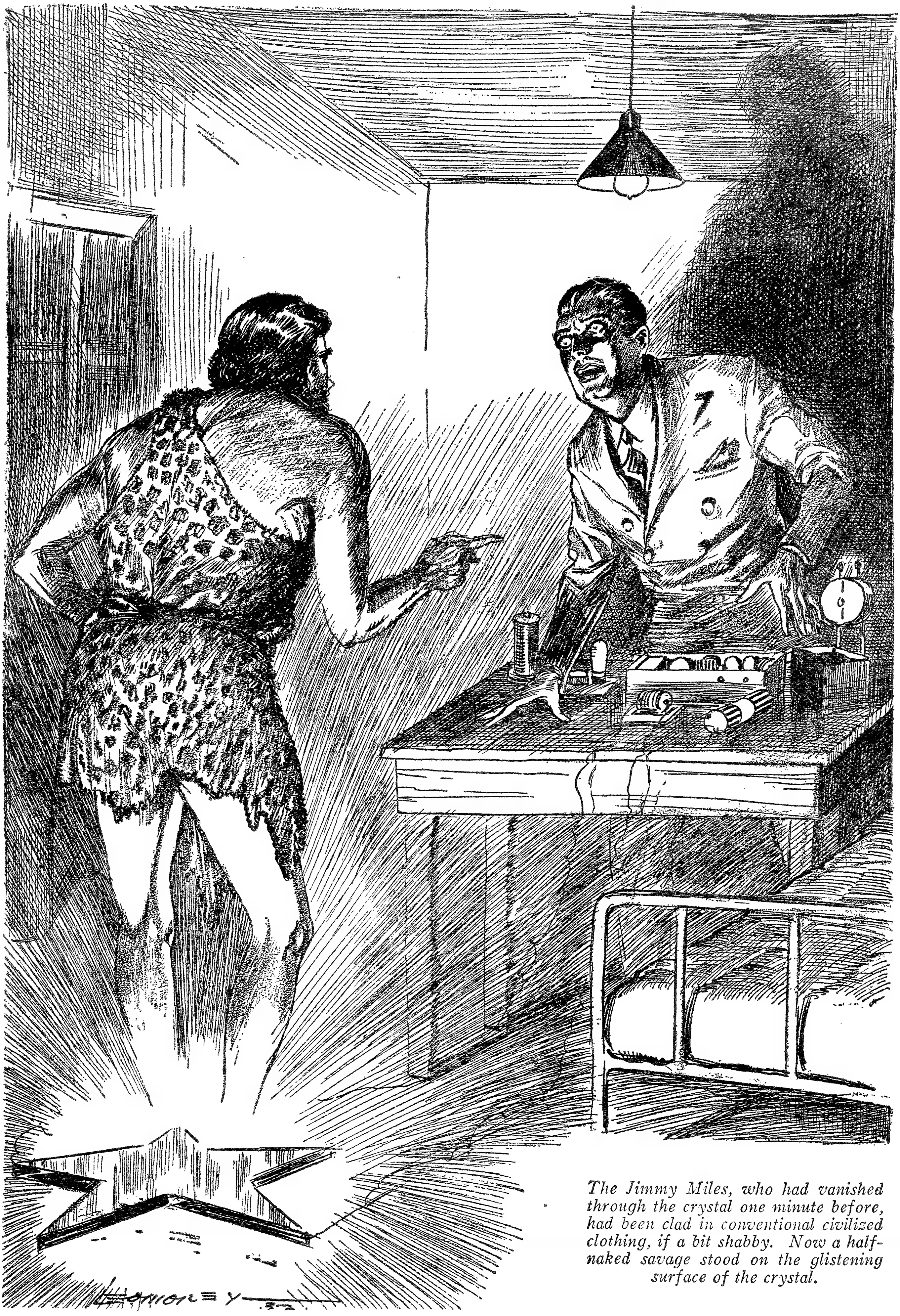
"I went in to examine it. The proprietor said that a Mexican had brought it in two or three weeks before. Seems he'd smuggled it across the river from Juarez, said it came from the ruins of an old fallen building in the desert, way down in Chihuahua."

"I know the sort of thing," I said. "Big mounds of dirt, crumbled mud walls with broken pottery and stone axes and what-not mixed in. I've just been down on the Casas Grandes River—uncle has a ranch down there. Saw lots of the mounds—the Mexicans call 'em *moctezumas.* They have been digging them up, treasure-hunting—some of them have pieces of *matte* in them, copper alloyed with silver and gold, just as if it had came out of a prehistoric furnace. Nobody knows when those fellows lived there. To judge from the ruins, the whole valley must have been farmed."

"Well anyhow, this peon had brought the crystal across the river, claiming he had dug it up in an old ruin. Seemed to think it was a diamond, fabulously huge. The pawnbroker knew it wasn't any diamond, of course. But he let the fellow have something for it.

"The thing aroused my curiosity immensely. The pawnbroker wanted two hundred dollars for it. That was more than I had in the world. After three days, I drove him down to a hundred and seventeen. That left me with sixty-one dollars. I've lived six weeks on that, and spent twenty of it for apparatus to test the crystal with.

"Dingy little room I have, hot as a furnace. It looks out on a ventilator shaft. Three dollars a week. Living on dry bread, and raisins and a slab of cheese, in my room. When I want to celebrate, a little cheap fruit,



The Jimmy Miles, who had vanished through the crystal one minute before, had been clad in conventional civilized clothing, if a bit shabby. Now a half-naked savage stood on the glistening surface of the crystal.

or a glass of milk and a slab of pie at that Coney Island joint." He grinned.

"But what about the crystal? What is it?"

"I don't know what it is. But I do know that it's worth every cent I paid for it. I've been starving along, struggling with it, hoping to learn the secret of it, before I had to turn it over to some museum or college professor for a song. And I've done it!

"That crystal is the greatest thing since Columbus!"

"How?" I pressed him.

"You read those stories about worlds in the Fourth Dimension, worlds in the atom, worlds in the infra-red spectrum, worlds——"

"Read 'em and laugh, mostly. I can admit people on other planets, but as for the Fourth Dimension stuff——"

"I used to be that way. But Stewart, you know that crystal is a connecting link with another world! I've never gone through, myself. But I tied my watch on a string, and let it through."

HE laughed, ruefully. "And something happened to it. I'd been planning to pawn it. It came back all right; but it wasn't worth pawning any more. Crystal broken, figures faded off the face, case worn and works corroded and ruined. Looked like it had been lying out in the weather a century or so."

I looked keenly at the man, to see if he were paying for a good dinner with a good lie. A smile of enthusiasm was on his thin face, his blue eyes were very bright. He seemed quite grave and serious, and for the life of me I could not doubt his sincerity.

"Come around to my room, if you like, and I'll show it to you."

"I'm coming!"

What he said had appealed indeed to my love of the marvelous and the fantastic.

We had been strolling down the sultry street. Now he quickened our pace, led the way toward the river, where there were many mysterious doors, where there were little fruit stands and dirty street peddlers, where there were signs in Spanish and Chinese, and an alien note to the voice of the crowd.

"Not the best neighborhood in town," Jimmy Miles observed. "But one cannot be a chooser on three dollars a week."

He slipped between a swarthy Mexican and a strapping colored woman, and led me into a dingy lobby, a dark and stale-smelling lobby, where a crippled man and a white-haired patriarch were playing a languishing game with dirty cards, and a thin dyspeptic fellow was wearily rattling a newspaper.

He led me quickly across the room, up a narrow steep stairs, and down a long dark hall, that was hot and unpleasant with a faint, sickly odor. He stopped before a blank door, and turned a key in the lock. I followed him.

A mere cell it was, with a narrow bed, a tall scarred bureau with cracked mirror, a broken rocking chair, and a tottering stand. The one little window opened on a hot, black roof, with a blank wall eight feet away. The room was stifling in the sultry midsummer afternoon.

"See!"

Jimmy Miles pointed to the strangest piece of apparatus that I had ever seen. It stood in the corner of the little room, back of the door, filling most of the available floor space.

Set on a low bench, apparently made mostly of packing boxes, was a wonderful, blazing gem. A five-pointed star, nearly three feet across, perfectly formed of scintillant crystal, scarlet, ruby-red, sparkling. It was like a five-pointed star sawed out of an inch-thick sheet of flawless blood-ruby.

Beside the crystal, on the bench, was a little stack of dry cells, a Ford coil, and a small brass switch, connected with wires that ran under the bench. I saw a radio "B" battery, an electron tube and rheostat, and some more wiring that I did not understand.

"There she is," he said.

"Quite interesting. I hardly see what it's all about."

"Well, I found out something interesting about the crystal. It isn't a natural formation. It's artificial——"

"Artificial!"

"Made by man—or at least by some intelligent being—without a doubt! There are two little platinum studs on the lower side of it, that I have the coil connected to. And it's got metal parts inside it. The crystal stuff may just be cast over it to protect it."

"BUT those Indians, whose ruins are the *moctezumas*, didn't know anything about the use of metals, even if they did smelt them a little."

"No use to argue that. They may have found the thing in the ruins of an older civilization. It's hard as diamond; it must be nearly indestructible. Just another puzzling relic of a lost civilization, like the Great Pyramid. More than likely the people that made it went inside it—went through it to that other world. You say you write stories. There's drama for you. A doomed continent sinks into the sea and the scientists toil to make the star to let them into another world.

"And of course there is the interesting possibility that it was made by a race of that other world, who wanted a window into our space."

"How does it work?" I demanded.

He looked around the bare, little room, evidently in search of something, then fumbled in one of the bureau drawers, where there was half a loaf of bread and some grocer's sacks. He produced an empty sardine tin, which he laid on the scarlet, star-shaped crystal.

"I send the discharge of the coil through it," he said. "It glows, phosphoresces like the diamond does under kathode rays. But the emanation from it has a queer effect."

He closed the little switch. The Ford coil buzzed angrily, and purple sparks played about its points. And a soft crimson fire shone from the crystal, it seemed to melt into a rosy fog. Pale weird lights of green and purple and blue played about the edges of the red flame.

Bathed in soft, red fire, the tin can sank through the crystal. Gleaming crimson mist flowed over it—the crystal seemed to have become a mere nebulous scarlet haze. The tin vanished as if it had been dropped into a basin of blood. And quickly though the man still held down the key, the coruscating mist faded, and the star was real again, sharply distinct.

"It isn't on the other side of the crystal," Jimmy said. "Not on the bottom, I mean. It has somehow gone through it to another world. It may come back when I break the circuit; that somehow reverses the process. My watch came back—rather the worse for the experience."

He raised his finger from the key. And the shimmering red mist rose about the scarlet star again, until the crystal itself seemed to dissolve in a fog of dancing red molecules. And the sardine tin popped up through the ruby fog.

BUT it was a sadly altered can, battered and rusty as though it had been lying out of doors for months.

"Gone to the bad, like the watch," he said.

"Mostly, things come back when I break the circuit. That somehow seems to reverse the process. There is an analogy in electricity. When you have a secondary coil wound about a primary, a current is induced, for a moment, when you send a current through the primary coil. When the primary current reaches its full value, the secondary drops to zero. But when you break the primary circuit, the induced current again flows through the secondary circuit, this time in the opposite direction. This phenomenon must be of the same order."

"But where is it that the can went?"

"Frankly, I don't know, not positively. But I think it went through the space that mathematicians call the Fourth Dimension, until it entered another plane alongside our world, parallel to it. Let us say that this crystal is just a sort of boundary, or meeting place, between that other world, and this, in the Fourth Dimension.

"When we send the current through the coil, a sort of magnetic effect carries the body through the opening, as it were, into this other space; and when the circuit is broken the magnetic effect is reversed, drawing the body back."

"I've read stories of the Fourth Dimension."

"So have I—written mostly by men who considered it a sort of weird fairyland, without any conception of the scientific factors involved. But the Fourth Dimensional hypothesis seems to fit all the elements here better than anything else I can think of."

The man turned toward me suddenly, with fierce determination glowing in his blue eyes. "I'm going through tonight," he said. "I wish you would operate the switch for me."

"Going into that! Without knowing!"

"That's the way to find out. The watch and the can came back. I ought to manage it."

"Well, I can stand by, of course. But I'd wait——"

"I need a condenser, and another coil and more batteries, to increase the power to man-size capacity. If—I wonder if—if you could let me have a few dollars——"

"Of course. Whatever you need."

"The crystal and apparatus will be security."

"That's all right. You don't realize that you're giving me a real adventure."

I handed the man a twenty-dollar bill, which he blushingly accepted.

"If you need more——"

"This is ample. And you might come back—say, at eight o'clock. This hole will be cooler then. I'll try to have everything ready."

I followed him down the dark hall, and out into the street. I went to a show, and then tried to read in my room at the hotel. But my mind kept running back to the marvelous crystal that seemed to carry objects to another world—and to the amazing young man who was eager to undertake a voyage of discovery more marvelous than that of Columbus.

Ordinarily, I should have suspected chicanery, and a plot to separate me from some money. But I had not the slightest doubt of Jimmy Miles' sincerity.

My imagination, following his suggestion, persisted in building up rather a fantastic story out of it. I pictured a mighty civilization grown up on the earth, and suddenly faced with a cataclysmic doom—a submergence of continents, or an age of ice, or collision with a comet—the struggle to build the crystal, the escape, through it to a new world in the Fourth Dimension—and the crystal, by some freak of fate, the sole memento of that vanished race upon the earth—though what an empire they might have in the new world!

IMPATIENTLY I awaited the appointed hour; and when it came I hurried down to the shabby little hotel, so wrought up that I hardly noticed the bright windows and the gay, half-alien throngs that ordinarily I studied so intently. I found my way up to Jimmy's room, and knocked on the door.

When he let me in I saw that he had new apparatus attached to the crystal, to bring a more powerful and more accurately regulated current through it. I found that he had not eaten, so I insisted that we go down and get supper before the trial. He came rather reluctantly, but ate heartily enough.

By nine o'clock we were back in the little room. Jimmy gave me detailed instructions for operating the rheostat and switches—I was to hold the key down for exactly one minute. He handed me a long legal envelope. I opened it, and found this document:

To Whom it May Concern:

> This is to certify that I, James R. Miles, do this night of June 3, 1930, enter upon a most perilous adventure, in full knowledge of the peril to my own life and person thereby incurred. Mr. Stewart, or no other person, is to be held responsible in the event of my injury or complete disappearance.
>
> (Signed) James R. Miles

Below was the signature and seal of a notary public who had acknowledged the document.

"In case something happens," he said, "you might find that useful. Not likely to be any inquiries, though. I haven't a relation in the world."

With these words, he stepped lightly upon the flat, polished surface of the scarlet crystal star, and stood waiting, slender, erect, eager, his blue eyes burning intensely.

"Shoot!" he said.

Suddenly I felt a lump in my throat. For no very good reason, I felt tears springing into my eyes. I tried to say something, but at the moment I could not speak. I realized there would be no dissuading the young man from his adventure.

With an eye on the second hand of my watch, I pressed the little button that completed the circuit. The coils buzzed, wasp-like. A soft red mist rose about the crystal—it seemed oddly as if the gleaming thing vanished, ceased to exist in our space at all, leaving a sort of door that was screened with the dancing rosy mist.

And Jimmy Miles fell through the scarlet star.

Quickly, as if some strong magnetic attraction were drawing him, he dropped into the three-foot blur of crimson fog. He waved his hand briefly, as I pressed the button. And he opened his lips, to breathe a sound that might have been "Good-by" if he had stayed to finish it.

It was over in a split second. The red mists had faded, and the gleaming star had recovered its appearance of brilliantly polished ruby.

I SAT on the broken chair, in the stuffy little room. My watch was on my knee, and I held the key down with a finger. The coil was buzzing merrily, with purple fire flashing from its contact points. My eye traveled restlessly between the crawling second-hand of the watch and the rude apparatus that had sent a man on an amazing voyage of exploration. I moved a little, sat straighter, in my tense nervous strain. In my pocket I heard the rattle of the document which was to absolve me from prosecution for murder, if Jimmy did not come back.

It was all beginning to seem very wild and fantastic, when the end of the minute came. And I felt an icy chill of fear. What if that vaguely guessed-at reversed magnetic power of the crystal failed to function? What if it failed to draw Jimmy Miles back into our world?

I was near crying out with the strain when the end of the minute came. I raised the key. The hum of the coil ceased abruptly. And the glistening surface of the scarlet star seemed to melt into a dancing mist of ruby particles.

And an amazing apparition plunged up through that bloody fog.

The Jimmy Miles, who had vanished through the crystal one minute before, had been clad in conventional civilized clothing, if a bit shabby. Now a half-naked savage stood on the glistening surface of the crystal. He had a good deal of beard, and unkempt hair fell to his naked bronzed shoulders. There was a livid scar across his great bare breast. His only garment was a tawny skin, dressed with the hair on, crudely fastened about his middle. In one mighty hand he grasped a coil of rawhide rope.

And this amazing stranger raised a bronzed arm, cried out in astonishment evidently as great as my own. Then he grinned at me in astounded recognition, and I realized that he was indeed Jimmy Miles, but changed immensely. Instead of a slight boy, or little more, he was now a powerful man, tremendously muscled—and extremely unkempt.

It seemed as if he had aged years in a single minute of our time.

"Still here, Stewart?"

He spoke hesitantly, in a voice rusty, it seemed, from disuse.

"Yes. Yes, of course. But what has happened to you."

"Of course? And still in this same little room? And you don't look—why you look as I might have left you yesterday!"

"Yesterday? I held the key down just one minute——"

"One minute! Man you're foolish! It's years! I've been roaming a strange world for years. A moment ago I was stalking a wild horse with Harr Garr, without a thought in the world of the old life. And to be snatched up like this!

"You don't believe it? Look at this hair, this beard! Look at these!" He touched the great scar on his chest, a livid white spot on his forehead. Evidently wounds, long-healed. "Does a man collect such things in a minute? You're crazy!"

"No. No. But a strange world, you say?"

"YES. I can tell you about it. Plenty of time. But this! Still 1930? I had figured it ought to be '35, at least. How in the Sam Hill——"

"I have it!" I interjected. "The watch and the tin can! They showed the effects of months of time. *Time passes faster in that other world!*"

The giant bowed his shaggy head, considered.

"Yes, it could be. Relativity and so on. And it must really be in the Fourth Dimension. The crystal is just a door between two worlds. The magnetic attraction draws one way when the current is turned on, and jerks the object back with the reversed field when the circuit is broken."

"Logical enough, as such things go."

"I'd given up all hope of coming back. I was making the best of things there. The Lord knows I had thrills enough!"

"Tell me!" I demanded.

"Give me time!" The naked, bronzed giant stepped down from the little crystal, flexing mighty limbs.

"You need some clothing."

"Presently. Before I go out, of course. But I'm pretty well used to going as I am." He looked down at the spotted, tawny hide about him. "Skin of a leopard I killed myself," he commented.

"Shoot! Spill it!" I demanded.

He stepped over to the bed, a splendid bronzed giant, and deliberately seated himself upon a none-too-clean sheet, fixing his brilliant eyes upon me.

"To begin with," he said, "it seems to me that it is about five years since I saw you last. I was not able to measure time very exactly, however, for on the planet where I found myself, seasonal changes were not perceptible. And the sky was uniformly cloudy, so that only occasionally was I able to see sun or stars. I did get enough glimpse of the sky there, however, to assure myself that, by day and by night, it looks somewhat as the sky of earth, though the sun seems rather larger and bluer, and the constellations of the stars are strange.

"That world, too, seems much younger than the earth —say, about like what the earth probably was when man first appeared upon it. There was no winter while I was there, no frost, and the climate was uniformly warm and wet. It is a world of luxuriant jungle.

"But I suppose I should begin with the sensations of the change. When I stood upon the crystal, and you depressed the switch, I felt as if I were floating on immense waves of *power*. Then the room grew black, about me, and vanished. I reeled, had a dizzy feeling of falling. That is all.

"Then I was standing in that new world.

"Literally new, I suppose. I found myself in a rank, luxuriant jungle. Above me towered a larger tree than I have ever seen on earth. It must have been nearly a thousand feet high; sometimes its top was actually hidden in the low gray clouds. For it was always cloudy in that world, and warm rain drizzled almost endlessly down upon the rank, fern-like undergrowth that rose in the gray light.

"I was standing there, in a primeval jungle, rather amazed, and a little terrified. I was expecting to be brought back to this world in a minute, of course. I even tried to count the seconds, after I got over the first amazement and began to be worried. I had expected to find the crystal still visible in that other world.

I COUNTED to many times sixty—and nothing happened. I felt a chill of horror. I knew that I was not going back.

"For a few hours I could do nothing but wander about beneath that mighty tree, staring up at the unbroken ceiling of cloud, lost in wonder. There was no doubt that I had found another world, but what I was to do with it seemed a highly uncertain matter.

"Presently it began to rain harder, so copiously that even the foliage of the giant tree was scant protection. While it was raining, night fell, A sudden pall, that blotted out all the gray light of the sky. I wandered about in the darkness, now very keenly sensible of the fact that I was utterly cut off from the world I had left, with no apparent means of getting back.

"Suddenly, I heard the beat of great wings in the darkness. And something screamed with a hoarse, raucous voice that wrecked my nerves. I felt something *swoosh* past me in the air, heard the click of snapping jaws.

"I know now that it was a most foolish thing to do. But I turned and ran off through that black jungle, through utter darkness and rain and mud, blundering into trees, caught and tripped by vines, splashing into pools and streams. Two or three times something started up near me, only increasing my terror.

"Then I was suddenly embraced in great muscular arms. I think I screamed with fear. I struggled my best to get away. But a baby might as well have struggled in a giant's grasp. Hairy arms enfolded me. And presently seeing that my struggles availed me nothing, and that my unseen captor offered me no immediate harm, I relaxed my frenzied efforts.

"I was carried up into a tree. Using a free arm to feel of my captor, I was soon satisfied that he was something on the order of an ape or a hairy man; and his low gutterals had something of the human voice in them.

"That was the beginning of my acquaintance with Harr Garr, the savage man of this new world. The meeting was to prove a most fortunate one for me. He was the rudest of savages, ignorant of metal, even of fire, and armed only with such sticks and rocks as he might pick up. Yet he was better prepared for existence in that world than I was. We seldom think of how poorly the civilized man is equipped to care for himself unaided. Our work in this world depends so much upon machines—upon machines that we must have other machines to build. And we are all so highly specialized—no man knows how to do all the tasks required for his daily comfort.

"I should probably have starved to death, if it had not been for Harr Garr—or more likely, should have been eaten before I had time to starve. The fellow kept me in the tree until morning—he seemed oddly disposed to share my company, and laid mighty hands on me, whenever I attempted to move.

"For some reason, he seemed rather kindly disposed toward me—it turned out that he was separated from his tribe, and his gregarious instinct made even my companionship desirable. He seemed much interested in sniffing me and feeling of me at first. Presently he released me, but showed an inclination to lay hold of me again when I moved. And in the darkness and on our unfamiliar perch, I did not dare to make any violent attempt to leave him.

"It was not long before daylight came—the day on that other world is only about six hours long."

"THE earth had a shorter day during the early ages, before the tidal drag from the moon slowed it down," I commented.

"When the light came, he descended to the ground, a vague hairy shape in the half-light. He waited below, and when I missed my footing on a branch, and thrashed about in the foliage, holding by my hands, he laughed at my misadventure in a wholly human, if rather inconsiderate manner.

"He seemed inclined to be vaguely friendly, and I realized that his good will might be worth a great deal, since I had not the slightest idea of how I was to get back to El Paso. He began looking for his breakfast at once, and I knew no better way of satisfying my own hunger than by imitating his methods.

"The berries and fruits that he ate I could stomach well enough. But when he took to over-turning stones and eating the little grubs and hard-shelled things he found under them, it was too much for me, though he gave a gutteral grunt that I interpreted as an invitation to join him. While he was thus engaged, I contrived to stalk a clumsy, bird-like thing, and to kill it with a luckily directed stone. I tore the skin off it, and divided my gory prize with Harr Garr, thereby, I think, proving my friendship. I was not yet extremely hungry, but I thought that since I should probably be reduced to such fare in the end, I might as well begin at once and conserve my strength.

"When our meal was over, my companion wiped his great bloody hands on hairy thighs, and made off through the jungle, grunting as if to ask me to come on, if I wished. I thought I could do no better than to go with him. A strange creature he was, loping along before me, a gray, hairy shape, hunched and shambling, with great arms hanging almost to the ground and shaggy head thrust forward. But he was much more human than animal.

"We wandered together for two months or so. I made a great effort to learn his language. He was amiable about it, and willing enough to help, though he tired very easily. His language seemed to consist only of a few hundred grunts and clicks, sufficient to express only the most simple and concrete ideas, and them most crudely.

"As I have said, the name of my odd companion was Harr Garr. Though he did his best with the jabbering grunts, he could give me but the vaguest idea of his past history. It seemed that he had always lived among 'The-People-of-the-Mountain' and that the 'Old-Man-of-the-Winged-Stone' had driven him out, not to return until he brought a 'she'.

"That 'she' seemed to be the object of Harr Garr's present rather aimless quest. I had been with him two of three months before we got on the trail of another rambling tribe, and then it was another month before the paleolithic* love affair came to a climax.

"The method of courtship seemed to be to steal along in the wake of the other tribe, avoiding the males, who would be only too eager to kill and eat us. But, as I was a little surprised to note, the lucky lady was not to be seized by force. For, in that event, as Harr Garr dramatically expressed it, she would be likely to smash his head with a rock while he was asleep, and run off.

"HE did his best to persuade me to accompany him on these surreptitious, amatory expeditions, evidently under the impression that I was in need of a female of my own. But while he was absent on these trips, I usually spent the time up a tree, grasping a sharp rock—a sort of triangular 'fist-hatchet' which was the best weapon I had come across.

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* An early period in human origin, characterized by weapons made of stone. It is assigned to the second place of the stone ages or is sometimes used to include four divisions or the whole of them.

"In the first few days I had been filled with great ideas of rubbing sticks to make fire, and then smelting metal, and doing other marvelous stunts. But pretty soon I found that Harr Garr was just about my equal in civilization, until I got a little more practical knowledge of this young planet. Everything I knew how to do depended upon tools to work with.

"I remember very well the day when Harr Garr's courtship came to a climax. He brought the grinning bride to my hiding place. She was a much better specimen of humanity than I had anticipated. Her body was erect, almost hairless, and certainly lithe and graceful. She was clothed to the knees in a wealth of curly brown hair. Her face was not unlovely, and the eyes were clear and bright, glowing with a love for the gigantic Harr Garr.

"I was a little amused at the intensity of their affection, and sometimes almost brought to tears by the pathos of it. They were bound up in each other, usually oblivious to my presence. They would sit together for long periods, holding hands, gazing into each other's eyes. And when we hunted food, each shared the choicest morsels that he found.

"During the first few days, however, there was little time for love-making. It seemed that the male relations of Tol-ga, as the girl was called, were immovably opposed to the match. We traveled night and day, frequently crossing streams and doubling on our track. Once a solitary hairy man caught up with us. Harr Garr joined furious combat with the hulking, shaggy beast, first with hurled stones, then with tooth and claw. What the issue of the fight would have been, I do not know, for Tol-ga, at considerable risk to herself, ran in and smashed the other creature's head with a rock; her mate rose victorious.

"We hurried on, and presently threw off the pursuit. Then life was easier; and Harr Garr and Tol-ga had time for love-making. The weather was always warm; there was plenty of fruit and a good many little animals that might be killed with stones. We lived well enough.

"There were a few adventures with wild animals. It seemed that the deeper morasses were inhabited by a huge, winged reptillian monster, something like the old *pterodactyl;* and there were huge tiger-like beasts that roamed the forest at night. But Tol-ga and Harr Garr knew their habits, and were able to keep us from harm —though we had escapes that seemed perilously narrow to me.

"At last we arrived at the settlement of Harr Garr's tribe, 'The-People-of-the-Mountain.' A narrow trail led up the face of a cliff to a broad shelf of rock, five hundred feet above the jungle in the canyon. A huge dead tree—it was something like a pine—grew upon this shelf, which was of some acres extent, and there was a scattering of other vegetation.

"BEHIND the tree was a narrow cave-mouth, opening out into a vast cavern in the mountain. We had been met by a sentry on the path, and a horde of naked cave-people came pouring out of the gloomy opening as we came upon the broad ledge. All were naked and somewhat hairy, of about the same type as Harr Garr.

"There were seven or eight young men, all somewhat older than my companion, and perhaps three times that many women—mostly scrawny, horrible hags, though one or two were nearly as good-looking as Tol-ga. There were so many naked, squalling babies that I made no attempt to count them. The autocrat of the tribe seemed to be a huge, gorilla-like creature, rather old and hideously scarred. Younger men, females, and dirty children seemed equally in awe of him, and he appeared to enjoy cuffing all that happened within his reach. He was called Kog, or sometimes 'The-Old-Man-of-the-Winged-Stone.'

"The savage creatures seemed amazed at my comparatively white, hairless skin. They crowded around, feeling of me. They were not exactly fragrant, and at my objection, Harr Garr sprang to my aid and herded them off. They seemed willing enough to admit me to the tribe on equal terms, though Kog made it plain that he would like nothing better than to knock me about, as he did the others, if I gave him any excuse.

"I saw nothing more desirable than to make my home with them—for all I know they were the most highly civilized race in that world. I hoped presently to get my scanty scientific knowledge reduced to a state practical enough to bring these people some of the gifts of civilization, fire and metal at least.

"But fire was brought to the tribe before my clumsy experiments were successful.

"I had been with the tribe two months, I suppose, had learned the names of most of the adults, was a lodger in the cavern on equal terms with any except old Kog, and had been on a few hunting trips with Harr Garr.

"There was a dense thicket below the cliff, with the trail leading up from it to the shelf. This thicket, I early discovered, was inhabited by a savage creature, comparable to the saber-toothed tiger, that was the terror of prehistoric man on earth. The savages seemed to worship him almost as a god, offering him a part of every kill, in the belief that his spirit hunted with them. The offerings were left on a great stone before the cave, at night. Fortunately the entrance was too narrow to admit the monster. His presence perhaps really had some practical benefit, in keeping away other and less dangerous enemies.

"Soon I learned of the human sacrifice to the tiger. One of the hunters had been bitten by a poisonous snake. Shrieking, contorted with pain, his body already turning black and swelling, he was carried to the cave. But instead of taking him inside, the men at the order of Kog, lifted one side of the great boulder on which the offerings to the tiger were left, and set it down on the feet of the howling, bloated cave-man.

"The swift darkness fell; we heard the padded footfalls of the great beast outside. Then a fresh out-burst of screaming, that was mercifully clipped off. . . .

"TOL-GA seemed rather more attractive than any other woman of the tribe—most of them were aged hags. I suppose she came from a tribe a little more highly advanced. Almost from the first I had noticed Kog, the brutish, hulking chief, casting greedy eyes upon her as she sat in the cave with Harr Garr, slender and graceful and clad in flowing brown hair, laughing at her lover with her eyes.

"I think Tol-ga and Harr Garr realized the danger, too. They talked to me of leaving and establishing a new tribe. But they knew of no other cave like this one, and the great beasts of the jungle were too frequent to permit a tribe or family to exist without some such impregnable shelter.

"One day, Kog ventured to assault Tol-ga, when Harr Garr was outside. Her screams brought her mate into the cavern on the run. As he came scrambling through the narrow entrance, Kog flung aside the girl, reached for his sharp-edged hurling stone.

"Harr Garr did not hesitate an instant, though he had no weapon, and knew that Kog was much more powerful, and cunning with the experience of a thousand bloody battles.

"He charged across the cave.

"Kog hurled his stone. It missed, was splintered on the rocks. Harr Garr struck him, bore him to the cavern floor.

"They rolled about furiously, biting, gouging, kicking, and clawing, each seeking to get his hands on the other's neck, so as to sink fangs in his throat.

"Tol-ga sprang to the aid of her lover as she had done once before. But the old hags that belonged to Kog seemed to have enough affection for their brutish master to pull the girl off, in spite of her furious struggles. In fact, it was all I could do to keep one of them from braining Harr Garr on her own account.

"Harr Garr fought furiously, but the other creature was far heavier, and experienced in combat. Once my friend got a hold upon him that made him howl with agony. But he broke away, and in a moment was on top, driving Harr Garr's head against the cavern floor.

"With a shriek, Tol-ga, struggling like a Fury, broke loose from the withered creature that was holding her, and flung herself upon Kog. I succeeded in tripping up the female that had been attempting to smash Harr Garr's head, and ran to aid the girl.

"Between us, we managed to pull the monster off her mate. The young cave-man was stunned, unconscious. But his marvelously thick skull had saved his life—for the time being.

"Kog insisted that, as was the rule with the wounded, aged, or disabled, the boy should be given to 'The-Watcher-Who-Cries-in-the-Night.' In spite of Tol-ga's frantic screams, and my own vain objections, Harr Garr was carried out in front of the cavern. The great rock was tilted up by four straining men, and the injured man's feet crushed beneath it, so that the vast strength of the tiger alone would suffice to draw them forth.

"The quick night fell.

"HARR GARR was still apparently unconscious. Tol-ga stayed with him, crying out in agony, and holding his bleeding head in her arms. The terror of the coming night drove the cave-men into the cavern. Even then she would not have left her mate, I think, but Kog seized her and dragged her inside, holding her struggling form in huge hairy arms, while he breathed amatory mouthings into her face.

"Outside, in the darkness, a thunderstorm was sweeping down the canyon. Through the narrow horizontal slit of the cavern door, I saw the blue glare of lightning flickering against sheets of falling rain. Thunder crashed and rolled in booming echoes in the canyon, while the men in the cave crouched in cowering terror.

"And out in the stormy night, two or three times, I heard the blood-chilling scream of the tiger, first far below, then so near that I knew he must be in the broad ledge before the cave.

"By the brief flashes of lightning that illuminated the gloomy cavern, I saw that Tol-ga had relaxed in the foul embrace of Kog, silent and inert, as if resigned to fate. But suddenly I heard the sound of a sharp scuffle, and the fall of a heavy body.

"When the next dazzling flash of lightning came, I saw that Tol-ga had somehow tripped Kog, who now lay sprawled on the floor. She had escaped his grasp, was running, already was half way across the cave. In the momentary illumination she seemed motionless, like a statue of a splendid figure in action.

"By the time the next flash came, she was leaving the narrow mouth of the cave. Kog had recovered his feet. But coward that he was, he could not have been tempted out into the stormy night, where the tiger waited, for a whole harem of jungle beauties.

"There was another screaming roar as Tol-ga ran out, as if the tiger were surprised and angry. Quickly I scrambled past the huddled, terrified cave-men, to a point where I could watch from the narrow mouth of the cavern, though I lacked courage actually to leave it.

"As I reached my point of vantage, a flickering series of purple flashes lit the scene before me. Harr Garr still lay with feet beneath the rock. He was conscious now, half sitting up, and staring in a paralysis of horror at the huge, tawny beast that crouched a dozen yards away, giving vent to a frightful scream.

"As I looked, Tol-ga, a slender, trim, wild thing, mantled in rippling hair, ran across before me, stood between her lover and the tiger. Another flash came, and showed her poised there, noble and erect, while the tiger seemed in the very act of springing.

"Then there was a crashing detonation. The air was thick with purple sparks—I felt a powerful shock even as I stood in the cave's mouth. A blinding glare of light showed fragments of wood raining down before the cave. Lightning had struck the old pine before the entrance—splintered it.

"For the moment, the tiger was driven away by the explosive crash. Tol-ga flung herself upon her mate, tried vainly to drag him from under the stone. Her efforts resulted only in a cry of agony from him. She collapsed on his breast, weeping.

"IN a few minutes I heard the tiger screaming again, approaching. There seemed to be something querulous, hesitant, in his tones. In a moment I saw the reason. The lightning had fired the dry, resinous trunk of the old pine. Flickering red flames were dancing merrily up the splintered bole.

"I heard Harr Garr madly entreating Tol-ga to run back to the cavern to save herself. She did not stir. Then for a long time they were still—the girl there on the ground, holding up the bleeding head and shoulders of the mighty man whose feet were crushed beneath the stone. I suppose they were listening for the footfalls of the beast.

"At last Tol-ga looked up and saw the tiger. The fire was fifty yards away from them, the tiger was slinking uneasily up and down, from time to time raising a low, impatient growl. The lurid, uncertain light of the burning tree shone in his eyes.

"With her quick mind, Tol-ga must have understood at once that the fire was what kept him away. With a low, soft word to Harr Garr she rose, and stood staring at the flames. I would give a good deal to know just what she thought. It is possible, of course, that she had seen fire before; but that is not likely, for the cave-men seemed to know nothing of it.

"She stood looking at it thoughtfully, for perhaps an hour. If it was something new to her, she must have been reasoning pretty clearly, for what happened afterwards showed that she understood it pretty well, showed that she knew it was supported by dry wood, and that the wood was consumed in the process.

"At first the roaring blaze had swept up in a lurid volcano, lighting the whole shelf before the cavern. Slowly it died down. And as it died down the restless tiger came nearer and nearer, and began to repeat his dreadful screams—he was evidently getting into a bad humor. Above the crackle of the dying flames, I could hear his light, quick footfalls; his impatient course was traced by the red coals that seemed to gleam in his eyes.

"When the flickering, smoky blaze had fallen so that the tiger seemed about to come up past it, the girl ran to the fire and seized a blazing branch. She dragged it up close by the man under the rock.

"The first one went out, through too rough handling. She burned her hand painfully on the next, and cried out; but she was too plucky to give up. Soon she had a little heap of blazing sticks in front of Harr Garr. Then she made the great discovery that the phenomenon could be transmitted to a new piece of dry wood.

"At once she set about gathering up the scattered fragments of pine scattered about the shelf. By this time the tiger seemed extremely impatient about his delayed dinner—even the storm had frayed his nerves, before this weird business of fire. He persisted in coming nearer, leaping restlessly about the fire, champing his teeth and squalling.

"Twice, the girl very narrowly escaped him, while she was gathering wood. Then she hit on the idea of carrying a blazing brand with her. Soon the sticks near the cavern-mouth were exhausted, and she had to go farther a-field. While she was gone, the tiger crept upon Harr Garr, determined to get at him in spite of the flames.

"COURAGEOUSLY, the girl ran at the huge, tawny beast, flourishing her flaming pine-knot. The tiger snarled savagely, refused to retreat. The girl came on, drove the blazing stick into his face. He sprang back with a howl of pain.

"And Tol-ga went after him.

"She passed out of my sight. She was driving the tiger toward the narrow end of the shelf, toward the sheer precipice behind it. I heard savage growls, squalls of pain. And then the crashing rattle of stones, as a heavy body plunged down the mountain side.

"She had driven the tiger over the cliff.

"In a moment she was back to Harr Garr. She took his body up in her arms again. But she did not forget the fire, but presently rose to gather sticks for it again.

"And then she came into the cave with a flaming pine-knot in either hand. The cave-men cowered back from her, shivering and mouthing in terror. With dauntless courage, she flourished her torches and shot jabbering clicks and grunts at the men, until she got three or four of the younger savages to hurl themselves upon Kog.

"The young bucks fought with a good heart—they hated the old bully cordially enough—and she helped with her firebrands. In a few minutes he was driven out of the cavern, broken and terrified.

"Then Tol-ga, with the authority the blazing pine-knots gave her, superintended the efforts of a half-dozen cave-men who lifted the boulder from Harr Garr's feet. No bones had been broken; and with the amazing vitality of his race, he seemed as well as ever in a day or two.

"Kog had been driven from the cavern, but he was back in a short time, with his females gathered around him, at his old bullying habits once more. He seemed to have learned a lesson, at first, and left Tol-ga and Harr Garr severely alone. But his brutish mind soon forgot.

"Tol-ga and Harr Garr kept the fire burning before the cave. The tribe soon realized the value of it as protection from wild animals, and for warmth on stormy nights. The art of cooking—or at least of broiling meat—was soon discovered. And an attempt to cook something in a woven basket water-proofed with a lining of clay resulted in a rude pottery vessel—the beginning of the ceramic art. When Tol-ga mastered fire on that night before the cave, she made the first step of her race on the long road to civilization.

"As keepers and masters of the fire, the young couple soon enjoyed a prominence quite unprecedented for those of their age. Kog grew insanely jealous of Harr Garr. A few months later he made a desperate and treacherous assault upon Tol-ga, armed with a jagged stone.

"Harr Garr had just started on a hunting trip.

"With her mental quickness, the girl escaped old Kog, provoked him to throw his stone, and dodged it. She got past him to the fire, and with a blazing stick kept him at bay until her calls had brought Harr Garr back on the run—Kog had not had self-control to wait until the young hunter was beyond hearing distance.

"THERE, on the wide ledge before the cavern, the two of them fought the final battle for mastery of the tribe. Kog, having flung his stone, was armed only with fang and claw. Harr Garr carried a wooden spear, the end shaped and sharply pointed. As they closed, he caught Kog in the abdomen with that crude weapon. Though the old bully carried the young hunter to the ground, he died of the wound before his superior strength could be turned to account.

"Thus Harr Garr and Tol-ga became rulers of "The-People-of-the-Mountain," and brought them the blessings of fire—in very much the same way that fire must have come to our world. When I last saw Tol-ga she was nursing a pink little infant.

"It must have been three or four years, as time goes in that other world, that I lived in the great cave. Twice, in those long years, I was wounded, once in an encounter with a pterodactyl, another time in a battle with a tiger. On both occasions Harr Garr saved me at the risk of his own life. I came to feel a real friendship for him, savage that he is.

It is only a few minutes ago that Harr Garr and I were hunting in the forest, stalking a shaggy little prehistoric horse that we were trying to capture. I was standing there in a little glade in the lush green jungle, silent and tense with the excitement of the hunt. Then a dizzy sensation of reeling, falling. And the next moment I was standing on the red crystal, looking at you. Do you wonder that I was amazed?"

And the bronzed giant straightened in his seat on the bed, fingering the tawny striped tiger skin about his waist. Blue eyes gleamed restlessly above an unkept beard as he said,

"And you know, Stewart, I'm going back to that world in the star!"

Stellarite

by Richard Rush Murray

IN this story we have a sequel to the previous story "Radicalite." Here a great invention is used for interstellar traveling. An interesting discussion of the momentum of a mass as applied to space-travel brings some very impressive conclusions.

Illustrated by MOREY

"WHAT'RE you doing to-night, Dick?" The speaker was a friend of mine, Freddy Hale, with whom I had graduated from Harvard the preceding year. He was of medium height and build, and extremely good-looking in his dress-suit and tall black opera hat.

"Oh, I guess I'll have to go to Claire's coming-out ball at the Ritz," I replied, wearily. I, too, was in full dress. "I'm about ready to quit, Freddy; I've been up until daylight every night this week. It's killing me by inches!"

"Well, I'll probably drop in at the Ritz later on in the evening, with Leila. We're going to the Robinson's dance first, and then the Marshall's; we'll most likely be at your place in time to go to supper."

My sister Claire was being "presented to society" that evening at a huge ball at the Ritz-Carlton, and my brother John and I must perforce be there. We were both ushers on the floor committee.

Everything went off very well. Over two thousand people were present. While I was dancing with my fiancée, Peggy McClanahan, I suddenly felt a tap on the shoulder. Turning disgustedly, for I supposed someone was cutting in, I beheld my brother, John, grinning mysteriously at us.

"Come along, you two," he commanded. "Mother and Dad want to see you outside."

We followed him and passed out through the doorway into the large hallway at the head of the stairs, to the place where my sister and parents were still receiving guests. As my gaze strayed to a slender, erect figure standing beside Claire, my heart leaped; surely I knew that face! Claire smiled.

"Baron von Sturmfeld, I want to introduce my brother, Richard."

"My friend!" The slender figure stepped forward and grasped me by the hand. "Little introduction do I need to the man who so bravely saved my life last summer at the risk of his own. It is good to see you!"

"What are you doing in this country, Baron, and how do you happen to be here tonight?" I exclaimed. I had believed him four thousand miles away, in distant Berlin.

"Easily accounted for," von Sturmfeld smiled in reply." I came to this country to make you a business proposition, arriving to-day on the '*Mauretania*' from Southampton, I called at your house this evening, only to find that you had left. They suggested that I come here, so, after having changed my clothes, I took a cab and arrived a few minutes ago. If you can spare me a few moments, I have something to say which I feel sure will be of interest to you."

When I had introduced him to Peggy, I turned to John, who was at my elbow.

"Johnny," I asked him, "will you take care of Peggy? I must talk to Baron von Sturmfeld for a few moments. You won't mind, Peggy?"

"Of course not, dear," she smiled. "Only don't be too long, and be sure to tell me all about it."

Von Sturmfeld and I entered an elevator and were carried to a private reception room which had been placed at the disposal of the guests that evening. In it we could order drinks at leisure and find seats in some corner where we could converse without being overheard.

"Well, how have you occupied yourself since last summer, my young friend?" asked the Baron, as we lighted cigars.

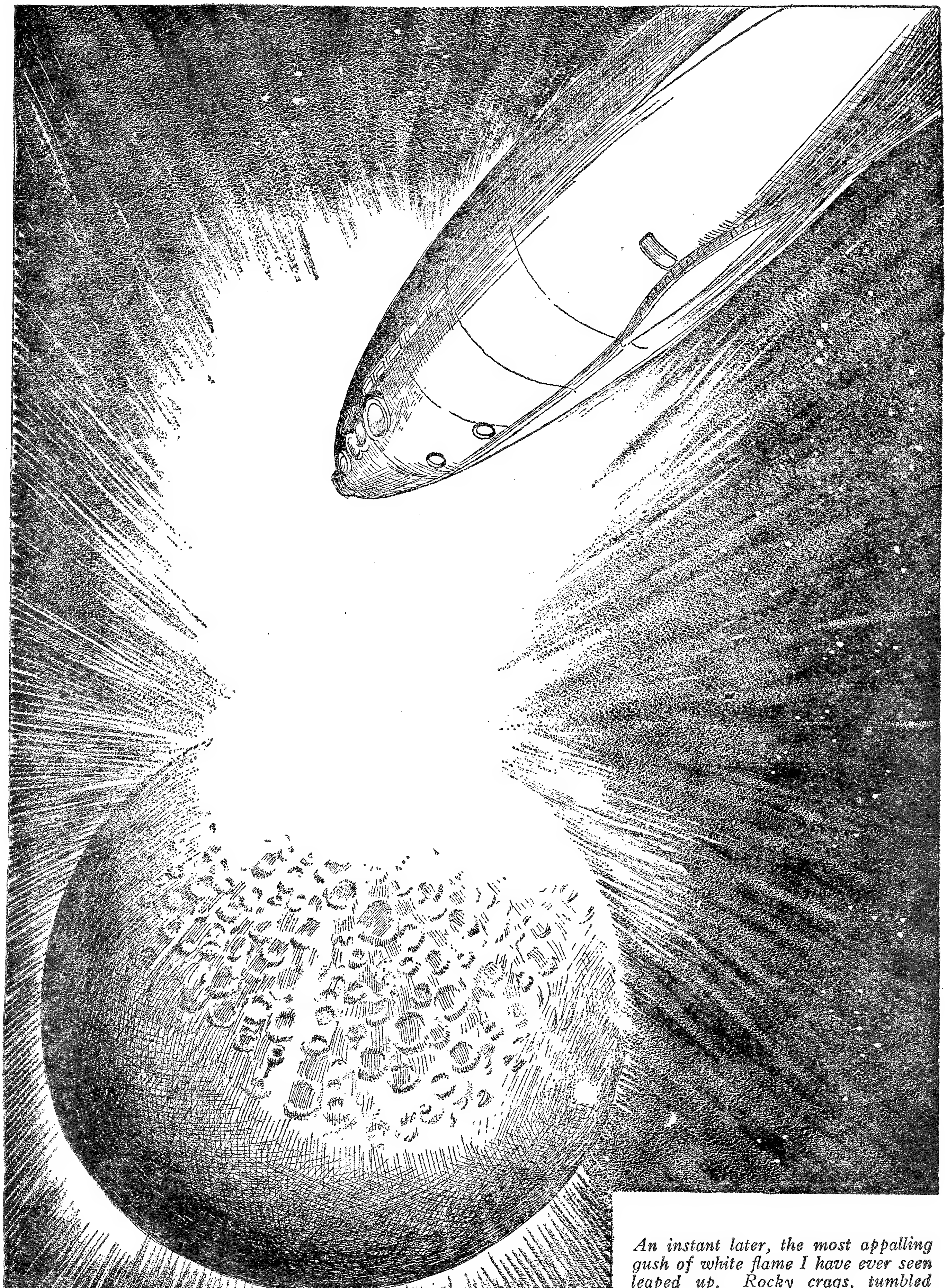
"With nothing at all," I replied, a tinge of disgust in my voice. "There've been no jobs open this winter, and, while my father can well afford to support me, I'd vastly prefer earning my own living. A continual round of débutantes' coming-out parties, with their idiotic girls and moronic men, has begun to get on my nerves!"

"How would you like to throw your fortunes in with me in an adventure so thrilling and glorious, that the entire world will hail us as heroes?"

"Very much," I replied, thinking he was joking, "but such things don't happen any more in this modern age."

"On the contrary, if all goes well, they will happen to you and me in the very near future. Listen carefully; I will explain.

"You will undoubtedly recall the story I told you last autumn, on that fateful day in September, when you saved my life; of the part I played in the explosion of the ammonium nitrate plant of the 'Bädische Anilin und Soda Fabrik' at Oppau, near Mannheim. Of the discoveries made by my friend Hermann Krüg during his experiments with the action upon compressed ammonia gas of the cathode ray discharge, and of how we planned



An instant later, the most appalling gush of white flame I have ever seen leaped up. Rocky crags, tumbled peaks and desert plains all sprung into sharp delineation as the two-thousand-pound missile of contracted light broke.

to revolutionize the sulphuric acid industry with our new catalytic substitute for platinum, a metallic form of the ammonium radical which he named 'Radicalite'. You will also remember how I told you of the frightful explosion that occurred while I was in Mannheim; an explosion which utterly obliterated the 'Bädische' plant, most of the town of Oppau, and my friend, Krüg."

"I should say I do, sir!" I explained.

"I am glad of that," commented von Sturmfeld. "To continue; during the time elapsed since we last met I have been experimenting once more with 'Radicalite', and have obtained some very tangible results.

"To begin with, my cathode ray generator is vastly improved. It is smaller and more concentrated than the one Krüg constructed. In it I am using a potential of 10,000,000 volts, in place of the 1,500,000 used previously. The cathode radiation discharge resulting therefrom will kill a man at a distance of a mile and a half, and will set fire to buildings half a mile away.

"Secondly, I no longer use compressed ammonia gas, NH_3, but, instead, the well known compound of ammonia and chlorine, ammonium chloride, NH_4Cl. I have found that this substance will, when heated to a certain point and simultaneously subjected to the action of the cathode discharge, be broken down to the metallic radical NH_4 and gaseous chlorine Cl_2. The reaction is thus,

$$2(NH_4)Cl + \text{Cathode Discharge} — 2(NH_4) + Cl_2$$

"This possibility eliminates the bothersome compressor and glass globe so necessary in the previous experiment.

"I have made quite a little wealth during the year, through the sale of metallic radicalite as a catalyst in the contact process of sulphuric acid manufacture. As a result, I am now about to take a step in a totally different direction.

"An important point to recall at this point is the property exhibited by radicalite of breaking down, when an electric current is passed through it. The speed of dissolution is controlled, of course, by the strength of the current, and may be varied from comparative slowness to explosive violence. At the slower rates of breakdown it is resolved into its component gases, nitrogen and hydrogen, which are produced in enormous volumes, but when instantaneous decomposition occurs, all matter contained in it disappears in a terrific flash of energy. Such, I believe, was the cause when my friend, Hermann Krüg, was lost in the explosion at Oppau, ten years ago. So far I have been unable to make use of this latter property, due to its terrifically destructive potentialities.

"If properly controlled, radicalite is an ideal fuel for a reaction motor. This makes possible a mode of travel which, if developed, will supersede all other forms of aerial propulsion.

"Nearly everyone knows that the American Astrophysics Society has had for several years a standing offer of a hundred thousand dollars in prize money, to be awarded the first man succeeding in propelling a flying machine from New York across the Atlantic, or *vice versa,* under reaction power. They know that from such a trip to a similar one around the world is but a short step, and that an interplanetary flight will soon follow.

"I have come to you partly because you saved my life and partly because I consider you a good companion to work with. Each of us can command sufficient financial resources to share the expenses equally, of course. Should we succeed, our names will be emblazoned with glory upon the roster of the world's greatest explorers and pioneers. What say you, my friend? Will you join me in this enterprise?"

I sprang to my feet.

"I wouldn't miss it for the world, sir! Certainly I'll join you; I can't thank you enough for asking me!" Baron von Sturmfeld smiled at my enthusiasm, as he ordered a waiter to bring champagne.

"Let us drink to the success of our venture, my boy." We clinked the tall goblets of sparkling, amber-colored wine and drained them with a toss.

"We leave on the '*Bremen*' at noon to-morrow; your passport of last summer is still valid, and it will be simple to arrange for accommodations. Mine are already taken."

A day later I found myself in one of the spacious passengers' salons of the "*Bremen,*" seated across from von Strumfeld. A large pile of plans, drawings, and specifications lay before us.

"What do you intend to use as a source of the electric current needed for decomposing the radicalite?" I asked.

"Let me show you the results of my recent work." He shuffled the papers around, extracting one covered with figures.

"We'll go back to our physics again. It is a well known theory that as a substance approaches the absolute zero, —273° Centigrade, its resistance to the passage of electricity diminishes in direct ratio in a manner similar to the lessened volume of a gas under similar conditions. You remember Charles' law: 'The volume assumed by a gas at different temperatures, the pressure remaining constant, is directly proportional to the corresponding absolute temperatures.'

"Theoretically, if the absolute zero were reached, the volume of the gas would become zero and it would disappear; practically, of course, it would become a liquid, or even a solid, some time before the zero point was attained.

"Now, all indications are that as a metal approaches zero, its conductance becomes greater, approaching infinity as the final point is reached. Experiments have been performed, at the temperature of liquid helium, —268.8°C., in which a ring of lead wire, cooled to this temperature, was made the secondary of an electrical transformer system. Enormous currents of electricity, induced in it, produced not the slightest sign of heating, evidencing its almost total lack of resistance. Hours later these currents were still circulating.

"However, I have investigated the properties of a different element under similar conditions, namely, helium itself. As you may remember, this gas has played a most interesting part in the history of chemistry. Discovered originally by Sir Norman Lockyer as a new spectral line in the sun, during the solar eclipse of 1868, and named 'helium' from the Greek word 'helios' (the sun), it was for a long time believed to be non-existent upon earth. In 1895, however, Ramsey identified it with an inactive gas given off when uranium ores were heated in a vacuum. It is now obtained chiefly by compression and fractionation of natural gas from wells in certain parts of the United States.

"Before reaching the pertinent part of this somewhat dry scientific discourse I want to point out to you some highly interesting facts concerning helium. Its atomic weight is 4, making it twice as dense as hydrogen, and its valence is zero; thus it enters into combination with no other element. With other elements which have an affinity for each other, the tendency is for the outer orbits to exchange electrons, thus forming one molecule of a chemical compound. But in helium these electrons seem to be fixed; the atom has no tendency either to gain or lose, and thus it enters into no known compound.

"Onnes has cooled the gas to the lowest temperature heretofore known to man, —272.18° Centrigrade. At 268.8° it became a liquid, but failed to solidify at a lower temperature, leading Onnes to believe that it would remain a liquid even at the absolute zero, —272°. In 1926, however, Keesom succeeded in solidifying helium at a temperature of —271.9° by subjecting it to a pressure of twenty-six atmospheres, Onnes' opinion is that at normal pressure it may still remain a liquid at absolute zero.

"He is mistaken! During the last year, since the time you and I so fortunately met on the *Unter den Linden* in Berlin, I have devoted much time to intensive research and experimentation along these lines. I have employed a compressor and a liquifier of my own design, that are considerably in advance of others in use to-day, and have succeeded in obtaining the ultimate point, —273°. At —272.98° solidification commences, and at —273° it is complete. This, of course, is with normal atmosphere pressure.

"This solid helium is the metal we will use in our electric accumulator system. I have reasons for believing that its resistance is nil, and that it forms a perfect conductor for electricity, with an infinite current carrying capacity.

"But enough of this for the present; we are to go from Hamburg, our landing port, to my estate near Manheim, where my experimental laboratories are located. It is in the heart of Germany's industrial region; we will thus be enabled to accomplish everything with the building of the ship. Here also we will have at our beck and call all the best chemists and engineers of the greatest industrial plants of the Fatherland."

* * * *

It was a week later. The Baron had completed the process of setting up the necessary shops, and had engaged engineers, mechanics, and workmen. The chemical and physical research laboratory staff had been augmented, and a new compressor and liquifier of von Sturmfeld's own design installed. All was in readiness for the final manufacture and testing of solid helium.

The apparatus consisted of a compressor, which reduced the volume of the helium, and a liquifier, greatly modified as compared with those of ordinary commercial use, in which the highly compressed gas was liquified. In it, very much refined, was used the familiar principle of cooling by expansion. The compressed helium, allowed to expand, absorbed the heat from a small portion which remained unexpanded. This process, repeated several times, resulted in the final liquefaction of the gas, at a temperature of —268.8° Centigrade.

"Now," said von Sturmfeld, "my principle of solidification is this: I allow part of the liquid helium to evaporate and thus remove more heat from that remaining. When this has been done three times, in my improved liquifier, the remaining portion solidifies. I will show you now." He led the way to the compressor room.

Manipulating several valves on the cylinders of the liquifier, he unscrewed a port on the bottom of the last one. As it dropped, I exclaimed aloud, partly in wonder and partly in fear.

Around the cylinder was a strong blue glow, a glow that reminded me of the deep blue of the sky after sunset on a cold, wintry day. In it was all the essence of the cold that passes understanding, the congealing, withering lack of heat that only outer space experiences. I felt a wave of chilled air strike through me to the bone.

"Well, my boy, here it is!" exclaimed the Baron, holding up to my gaze a ring of bluish metal that shone with a cold, glittering light. "Behold metallic helium, the last link in the chain! We need but to produce a quantity of this, manufacture a supply of radicalite, and build the actual ship. See, it does not evaporate."

True enough, the luminous metal remained as it had been removed from the liquifier, with no visible diminution. Von Sturmfeld held it with a long pair of tongs, as its intense degree of cold would have frozen his fingers to brittleness if they had touched it.

"Why doesn't it melt the way other solidified gases do?" I asked.

"I know no more than you," was the astonishing answer. "Ordinarily any solidified gas would melt when the surrounding temperature was at or above its point of fusion, and then, as it reached its critical evaporation point, pass off as a gas. In this case, however, I believe that the atomic structure has been definitely changed, resulting in a crowding-in of the planetary electrons around the central nucleus. The effect of this seems to cause the heat which it receives from its surroundings to be thrown off again as blue light, rather than absorbed.

"Continuing on these premises, I believe it is the conductor we have sought. It remains at a temperature of —273°, and should therefore have no resistance at all. We will learn whether or not the latter is true, now!"

As the metal was quite soft, it was easy to cut off a thin shaving with a hacksaw. This shaving von Sturmfeld clamped between two huge terminals on a power testing panel, explaining that by a special arrangement with the local power company he had available 11,000 volts at 3,000 amperes, the power resulting therefrom being the huge amount of 33,000 kilovolt-amperes.

"This will tell us whether our dreams are based on fact of fancy," the Baron commented, as he reached for an oil switch.

A blinding arc of flame dazzled me, as a shower of globules of molten copper made us jump back in dismay. A circuit breaker on the panel tripped with a thunderous clatter, as the terrific line surge caused by the short passed through it. The needle of the ammeter jumped off scale and then dropped back, the wire burned out, but there, standing up beneath the enormous load with never a flicker, was the shining blue strip of metal.

"Well, my boy, for the next few months you can settle down to some hard work with me, designing a ship in which to use our new power supply."

* * * *

Three months later Baron von Sturmfeld and I, with our corps of assistant engineers and mechanics, viewed with satisfaction the ship which our combined efforts had designed and brought into being. One hundred and twenty feet long by thirty in diameter, its silvery shining hull gleamed in the sunshine of the German spring.

Outside the enclosure a vast crowd of people had gathered, townsfolk, country people, and reporters from newspapers of all nations. Such an enterprise as ours was impossible to keep secret, and the newspapers had featured the "Mannheim Folly" almost from the day we placed our first order with the Oppau steel mills.

Most of the American papers were giving us the "royal razz," claiming that the ship was foredoomed a failure because its "alleged" theory of operation violated all the principles of established science. Von Strumfeld only smiled at such reports.

As we were about to climb the ladder leading to the port that gave access to the ship's pilot room, I suddenly remembered that we had not given it a name. I reminded von Sturmfeld.

"Let us call it the *Stellarite.* Do we not intend to take a trip into interstellar space after our trial trips prove her a success?"

"That's a grand name," I replied, enthusiastically. "Why not, indeed? Some day, with good luck attending, she will in truth soar away from this earth to the stars."

A bottle of champagne was procured; breaking it across the bow reaction tube, von Sturmfeld cried in a loud voice.

"I christen you *Stellarite,* may you carry us ever in safety through the starry firmaments!"

The crowd cheered, and as we were again about to ascend the ladder, a tall figure detached itself from the throng, eluded the guard the Baron had set, leaped the fence, and approach us at a run. He was young, freckle-faced, and red headed; in one hand he held a reporter's note-book.

"I know it's extremely irregular, intruding in this fashion," he exclaimed in faultless German. "Could you use a good reporter on the trip, to give the details to the New York papers? I represent the *'Dispatch',* and you know a reliable witness is always an asset to a good story. Will you take me as a passenger?"

Von Sturmfeld and I looked at each other, and then laughed simultaneously. I think we were both taken by the engaging frankness of the youngster.

"Do you realize you may lose your life?"

The reporter laughed.

"What's the difference? I should worry what happens to me, as long as it's an adventure."

Von Sturmfeld nodded approvingly.

"You may accompany us, young man; I like your spirit. It has occurred to me that it might be well to have with us a reliable witness, as you stated a moment ago. We leave at once."

So saying, he ascended the ladder and entered the control room, the reporter, whose name on his credentials appeared as William Campbell, followed suit, while I brought up the rear. The outer port opened upon an air-lock chamber, which in turn gave upon the pilot room proper, by means of another port. This, von Sturmfeld and I had decided, was provided against the time when we should take the ship upon a trip beyond the confines of the terrestrial atmosphere.

"I'm glad I managed to get aboard in safety!" Campbell exclaimed, suddenly. "There was a pretty rough-looking chap trailing me, and I just managed to shake him off as I got here. I overheard him and another tough 'bozo' making plans to sneak aboard this ship before you left! I guess they thought you wouldn't be leaving until to-morrow. Look, there he is in the crowd, up against the fence!"

We glanced out through the glass-enclosed side of the pilot room, to the place Campbell pointed to. Leaning over the fence and shaking his fist toward us was a towering, black-headed giant of a fellow. Von Strumfeld exclaimed:

"That's Hans Barendt, the Communist leader! A good thing he miscalculated our time of departure. I have blocked him in the Reichstag many times, when he has proposed some hare-brained radical measure, and he hates me bitterly. Had he obtained access to the *Stellarite* I fear we would not now be leaving for New York!"

As he spoke he depressed several buttons on the reaction motor panel. Immediately I felt the deck pressing against my feet, and as I glanced out the side could see the ground dropping away.

"Take note of the time," the Baron bade me. Obeying, I looked at my watch. It was just nine o'clock; according to New York time, six hours earlier, it was still three o'clock in the morning.

"How long will it take us to reach America?" I asked.

"Well," he replied, "with the enormous power we have in reserve we could easily attain a velocity of eight hundred thousand miles an hour, were it not for the fact that such a speed is unthinkable in close proximity to the earth. If we speed along at two thousand, we will reach the States in two hours, or about five o'clock. Thus the *Stellarite* will cross the daybreak line and land in darkness."

Already the sky was taking on a deep blue-black hue, as we gained in altitude. Even now we were at a greater height than ever attained by man; seventy thousand feet the barograph registered. Von Sturmfeld intended to rise until the atmosphere was sufficiently thin for its resistance to be negligible; the effect of air would be to reduce the speed and the ship would heat badly.

The *Stellarite* was now passing over England, heading for the broad Atlantic Ocean. Soon we were fifty miles over the earth's surface; the British Isles were tiny green gems set in a sea of indigo blue. The earth already presented a convex appearance, seeming like a vast, mist-covered ball.

As we gazed in the other direction, from the opposite side of the pilot cabin, we could see that the sun was sinking eastward. Soon it would be below the horizon and we would be landing in New York, apparently ahead of the time we started. It was a strange and unforgettable sight, and one that would linger long in my memory. Man had flouted the laws of nature many times, but never in so spectacular a fashion as this.

"Mr. MacCleod, please call America on the radio transmitter and inform them we have covered more than half the distance." This from the Baron.

Opening the radio cabinet on the right-hand side of the control panel, I closed the switches that placed the short wave transmitter in operation and called the high-powered station at Marion, Massachusetts. Not immediately receiving an answer, I repeated the call in code, and signed it "Rocketship *Stellarite.*"

This time a reply was not long in forthcoming. The return signal fairly pounded in, as the operator excitedly demanded our location, destination, speed of flight, and a thousand and one other details.

I told him we were in mid-Atlantic, and gave him all the other information I could think of. He said that another operator was flashing the news to New York, and that we would be met by a fleet of Army and Navy planes that would serve as an escort of honor to Roosevelt Field, Long Island, where a landing place had been prepared. Adding that since the *Stellarite* would land in darkness all searchlights in the vicinity of New York would be turned on the sky, including those of several battleships at anchor in the Hudson River, he signed off.

Now the sun had sunk completely. Although a strong glare of refracted light still suffused the eastern horizon; it was black night all around us, and overhead the stars shone with a brilliancy incomparable.

The hour flew by quickly. Campbell, who had been gazing entranced from the window, exclaimed suddenly and called us to him.

"See! the searchlights!" he pointed, far ahead on the horizon.

Sweeping the clouds could be seen tiny points and fingers of pale white light. Acting immediately, Baron von Sturmfeld depressed two of the controls; the bow of the ship sank in a long dive. Soon I could hear the whistle and shriek of the wind as the *Stellarite* tore through the upper reaches of the atmosphere, a shriek that became a prolonged roar as the denser strata were reached.

All at once we were in the midst of a group of planes. Our own searchlight bathed several in its radiance, and I could see the Army and Navy insignias emblazoned upon them. The planes, dove, the Baron following suit, and soon, when we had completely penetrated the cloud bank overhanging New York, I could see the far-flung lights of the great city itself. To the eastward, some distance our side of Brooklyn and Jamaica, was a square patch of brightly lighted ground I knew to be Roosevelt Field, and in a few seconds more the *Stellarite* had glided the length of the field and come to a rest before an enormous hangar.

Although the sun had not yet risen, a huge multitude of people had collected. The field fairly swarmed with them, and, as we emerged from the *Stellarite,* made a mad rush for us, shouting and cheering at the top of their lungs. By dint of much swinging of billies and threats of violence, the squad of police on hand finally cleared a way to the car that waited to carry us to New York.

The two weeks that followed were a repetition, on a wilder and stormier scale, of the welcomes accorded Lindbergh, Byrd, and early famous trans-Atlantic flyers. Paraded up Broadway from the Battery to City Hall Park amid clouds of ticker tape, confetti, torn-up telephone directories, and what not, we were greeted by an effusive and somewhat longwinded oration by the Mayor. After that it was one reception, presentation of medals or awards, and one public appearance after another, and at last it commenced to pall upon us.

One morning, after we had waked up with eyes red and heads splitting as the result of big doings the previous night, von Strumfeld turned to me with a grimace.

"My friend, I suggest we remove ourselves from this scene of turmoil and take another trip. What do you say?" I rolled over in bed, wide awake upon the instant.

"That's just what I was thinking, sir. This infernal round is beginning to 'give me a pain', as the saying goes. Where will we go?"

"Well, we might make a trip around the earth, or perhaps to the moon. The *Stellarite* can easily be fueled for such a journey."

Needlessly to say, I enthusiastically agreed. The news was received by the family with silent despair, however; already they had given me up for lost once before.

"Why can't you two be content to stay down on earth, Baron?" asked my sister, Claire. "I know that what you seek is the glory, but, after all, aren't your lives more precious than mere fame.

"It depends entirely upon the point of view, Miss MacCleod," replied von Sturmfeld. "As I look upon it, we are here to-day and gone to-morrow; we might just as well die soon as late. I am an incorrigible seeker of adventure, as I believe your brother to be; perhaps we hold the honor of achievement above the mere value of our lives."

The newspapers came out with shrieking headlines the moment our plan was announced. Most of them condemned us roundly as a pair of crack-brained idiots who would lose their lives and be forgotten. Little time did von Sturmfeld and I waste in trouble over such comparative trifles, confronted as we were with the terrific problem of coördinating all the factors of our proposed undertaking.

It was decided that the *Stellarite* would circle the moon, a trip within reason for a first effort. Bill Campbell was to accompany us in the capacity of reporter, giving his account of the trip to his paper upon his return. Cylinders of liquid air, prevented from evaporation by solidified helium, were placed aboard, as were stores of calcium oxide for the absorption of the carbon dioxide exhaled by the occupants of the ship. A stock of dehydrated foods was placed in the storage compartments against any emergency that might arise. The amount of current drawn from the bank of helium accumulators on the flight from Mannheim was replaced, and the other units completely checked. It was a week before we were at last ready to take off.

Countless thousands of people were milling around Roosevelt Field as final preparations were being made. We entered, slamming shut and bolting the outer and inner portals of the airlock. As the Baron stepped to the controls, I adjusted the short wave receiver to W2XAD, the 19 meter short wave broadcasting station operated in conjunction with WGY by the General Electric Company at Schenectady, New York. Abruptly the voice of the announcer on the field without filled the tiny space.

"The aspirants for the glory of being the first astronauts, Baron Ferdinand von Sturmfeld, Richard MacCleod, and William Campbell, are about to set forth upon their perilous journey to the moon. If they are fortunate enough to arrive in safety, they will explode a giant charge of magnesium flash powder for the benefit of astronomers on earth. Wait! they are taking off now!"

Even as he spoke, the Baron's hand moved, I heard the roar of the radicalite exhaust, and saw the field with its countless throng drop away beneath us. Another moment found us comfortably ensconced in our seats in the pilot room. Von Sturmfeld instructed Campbell and me to strap ourselves to our chairs. He did likewise, as the *Stellarite* soared into the clouds on what was to prove a long, eventful, and perilous voyage.

At first it was merely a repetition of the departure from Mannheim. Rising into a blue sky mottled here and there with patches of fleecy white cumulus clouds, the *Stellarite* ascended rapidly until the deflection of the barograph needle and the gradual darkening of the heavens indicated that once again we were leaving the terrestrial atmosphere. Here and there the stars shone out, while around the sun could be seen a slowly increasing halo of silvery coronal streamers.

The voice of the announcer at W2XAD commenced to fade in-and-out with a peculiar frequency, while sharp bursts of static marred the tone quality. Campbell commented on this to the Baron.

"It is possible that the *Stellarite* is now passing through the so-called 'Heavyside Layer,' the reflecting medium of ionized air that is supposed to exist in the upper layers of the atmosphere. It will be but a short time before we leave it behind entirely, together with all other things of earth."

Blackness now surrounded us on every side, blackness of a velvety thickness the like of which I had never even imagined. It was shot through with a million glittering diamond points of silver, that shone with a hard, gleaming luster defying description. Far around us stretched unimaginably distant reaches of infinity, reaches that seemed the epitome of chill, awe-inspiring immensity. Ahead of us lay the dazzlingly yellow-white hemisphere of the moon, while off to the left was the mysterious, glowing sun.

Communication was again clear, the static and fading having disappeared entirely. I called W2XAD, which was keeping a constant watch on our frequency, telling him that we were now more than five hundred miles from the earth. He said he would announce it to the world immediately.

"Baron," spoke up Campbell from the seat where he had had his eyes glued to the port, "tell me something about the sun. How hot is it, and what keeps it going?"

"Well," replied von Strumfeld, thoughtfully, "the answer to your question covers quite a lot of ground. However, I will try to explain it to you as simply as possible. Are you familiar with elementary physics and chemistry?"

"I took both subjects as part of my freshman and sophomore years in college," Bill smiled.

"Good, then you should know enough to follow me intelligently. A description of the modern theory of atomic structure is, perhaps, the best basis of an explanation of the sun's radiation.

"As you know, the simplest atom known is that of hydrogen. It consists of a central proton, as nucleus, with one electron revolving around it. The nucleus, with nearly 1840 times the weight of the electron, remains practically at rest, undisturbed by the motion of the latter. The nucleus and electron carry charges of positive and negative electricity, respectively, and therefore attract each other, which explains why the electron remains in a fixed orbit instead of flying off at a tangent. The attraction between electric charges of opposite sign follows exactly the same laws as gravitation, falling off as the inverse square of the distance between them.

"All orbits, whether ellipitical or circular, which have the same diameter have also the same energy, but the latter changes when an electron jumps from any orbit to another of a different diameter. If radiation of the proper wave-length is poured into an atom in which the electron is describing the smallest orbit of all, it crosses over to the next, absorbing 16×10^{-12} ergs of energy in the process and thus becoming temporarily a reservoir of that much energy. If it is in any way disturbed by outside influences, it may discharge the energy at any time, or it may absorb still more and so increase its store.

"The electron orbits in more complicated atoms have much the same configuration as the hydrogen atom, but are of different size. In the former the electron normally falls, after sufficient time, to the orbit of lowest energy and stays there. One might think that, by a similar process of reasoning, the electrons in a more complicated atom would in time also fall into the orbit of lowest energy and remain there. Such is not the case, as there is never room for more than one electron in the same orbit.

"These orbits are known, somewhat misleadingly, as rings of electrons. They are designated as the K ring, the L ring, the M ring, and so forth. The K ring, nearest the nucleus, has room for but two electrons. Any further electrons are pushed out into the L ring, which has room for the eight electrons. If there are more yet, they go into the M ring, and likewise with others, if these be present.

"In its normal state, the hydrogen atom has one electron in its K ring, while the helium atom has two, the L, M, and higher rings being unoccupied. The most complex atom, that of lithium, has three electrons, and as its K ring can only hold two, the third must perforce enter the outer spaces of the L ring. Other atoms of increasing complexity behave similarly, filling succeeding rings. Provided the electrons are not excited by radiation or other stimulus, each atom in time sinks to a point in which its electrons are occupying orbits of lowest energy, one in each.

"Early in 1907 Emden calculated that the central temperature of the sun would be in the neighborhood of 31,500,000 degrees centigrade. Later and more refined calculations by Eddington closely approximated this, while some still later ones of Jeans' gave the substantially higher figure of 55,000,000 degrees. The diversity of these figures indicate the difficulties attendant on calculations of this sort, but for the purpose of illustration we will assume that a temperature of 50,000,000 degrees exists at the center of the solar orb. Heat only flows from a hotter to a cooler place, and a vigorous flow of heat is indicative of a steeply ascending temperature gradient. The temperature must rise sharply as we pass from the sun's surface towards its center, and this rise, continued along the whole 433,000 miles to the center, must eventually result in an exceedingly high maximum temperature.

"This calculated central temperature so far transcends the experience of beings like you or me, that we can scarcely realize what it means. Assume, in your imagination, a cubic millimeter of ordinary matter, a piece the size of a pinhead, maintained at a temperature of 50,000,000 degrees. Incredible as it may seem, merely to continue this pinhead of matter at such a temperature—i. e. to replenish the energy it loses by radiation from its six faces—will need all the energy generated by an engine of three thousand million horsepower. This pinhead of matter will emit enough heat to kill anyone venturing within a thousand miles of it.

"Such a temperature would strip all the electrons off the atoms down to their K rings, but these would remain intact. It needs even higher temperatures to strip the K ring from the nucleus of an atom. As we pass outward to the sun's surface we come to lower temperatures, at which the atoms are less completely broken up, and finally, at the surface, we may find atoms which have lost but one or two of their outer electrons.

"Now we arrive at the actual point of our discussion, the cause of the continuance of the sun's radiation. Electrons and protons raised to such temperatures have been found to have a tendency to rush together and annihilate each other, setting their energy free in space as radiation. Einstein's theory of relativity provides a means for calculating the amount of energy produced by the annihilation of any given amount of matter; it shows that the energy set free is at the rate of 9×10^{20} ergs per gram, regardless of the nature or condition of material annihilated. This shows us that the sun loses 300,000,000,000 tons of weight every day in radiation.

"The amount of energy set free by the annihilation of matter is rather surprising; it is of an entirely different order of magnitude than any with which we are familiar. A ton of coal liberates about 5×10^{16} ergs of energy, while the annihilation of the matter in that ton of coal would liberate 9×10^{26} ergs, or about 18,000,000,000 times as much. If we on earth could burn our coal as completely as this, a piece the size of a pea would run the *Mauretania* across the Atlantic and back.

"Recent investigations in mathematical physics indicate that the highly penetrating radiation, received on earth, had its origin in the annihilation of matter in outer space. The amount received of this radiation is so great that we formerly supposed the underlying annihilation of matter to be one of the fundamental processes of the universe. We now learn that it is in all probability the process which keeps the stars and the sun shining and the universe alive."

"You certainly make matters clear, sir," exclaimed Campbell admiringly, as Baron von Sturmfeld paused. "The sun always has been a deep mystery to me, notwithstanding my studies in physics."

At this moment I accidentally struck with my hand the pencil with which I had jotted down the figures enumerated by the Baron. What was my amazement and consternation to see it spin off into the air and sink very gradually to the floor, instead of falling in a normal fashion! Von Sturfeld observed my astonished air with amusement.

"We are approaching the line of demarcation between Earth and Moon, the point where the gravitational fields of the two exactly counterbalance one another," he told me. "Soon we will have no weight at all. Come, let us see where we are," snapping out the light in the ceiling of the control room.

I gasped at the scene that lay before us. Dead ahead was the half disk of the moon, enormous and yellow, and filling a huge expanse of the velvety black heavens. The terminator line, dividing the regions of daylight and darkness, lay stretched in a glittering line of mountain peaks that thrust themselves up from the surrounding blackness into the last rays of the setting sun. Deep and mysterious lay the valleys of shadow that were between them.

Suddenly there came a click from the loud speaker a-top the control panel, and a voice boomed out.

"Space flyer *Stellarite,* W2XAD calling. Is all well with you? You have not communicated with us for several hours."

As von Sturmfeld reached for the microphone with one hand and snapped the transmitter into action with the other I could not help marveling at the wonderful ease of communication with the earth.

"Station W2XAD, Space Flyer *Stellarite* calling. How do you receive us?"

"Thunderous volume," came back the answer. It was interesting to note the time lag of almost two seconds in his reply, due to the 160,000 miles of space separating the two stations. "No fading or swinging; seems almost as if you were a nearby broadcasting station. Where are you, and how much longer will it take you to reach the moon's surface? All the world is anxiously awaiting your reply, which is being rebroadcast over a world-wide chain."

"Well," replied the Baron, "at the present moment we are passing the 160,000 mile mark, which leaves us a distance of 80,000 miles yet to traverse. As we have now reached a speed of ten thousand miles an hour it will require between eight and nine hours more to complete the journey. We will land in the crater of Tycho, which I have calculated to be approximately half an hour on the daylight side of the terminator. I wish to observe the spectacle of the lunar sunset. Later, when darkness has overtaken us, the magnesium flare will be exploded."

"You have the best wishes of all the nations of earth," the operator told him.

"I will keep in touch with you from time to time, and will appreciate it if you will keep a check on my signal strength," von Sturmfeld said, as he cut off the transmitter.

Eight hours later the *Stellarite* was dropping slowly into the enormous crater of Tycho. On all sides extended the brilliant "rays," or shining, luminous streaks, so well known to terrestrial observers of our satellite. From the wall of jagged mountains on the west stretched the purplish-black shadows of the lunar evening.

Suddenly the aspect changed; from looking up at something above us we found that it was we who were above and that the ship was dropping hull down toward the lunar surface. By careful changes of the reactive thrusts of the radicalite propulsion tubes von Sturmfeld manoeuvred the *Stellarite* until it was settling horizontally to the crater's bottom.

Abruptly, all around us, the air seemed filled with a myriad whirling flakes of white, while the sky changed from black to indigo blue. We could hear the whistle and rush of air as a storm of wind shrieked outside. Then a gentle shock; the *Stellarite* was once more upon solid ground and the first landing ever made by man upon the moon had been accomplished! Our leader bowed his head in a short prayer, in which Cambell and I joined, silently giving thanks to the Creator who had permitted us to survive the dangers of space.

"Apparently an atmosphere is present in this crater," remarked Campbell, as we stared with awe-struck gaze at the weird and desolate scene without.

"One that is rapidly solidifying," von Sturmfeld observed, as he gazed thoughtfully through the glass dome.

The flakes of snowy material sputtered and fumed as they struck against the glass, which, although cold from the absolute zero of interplanetary space, received yet enough heat from our warm interior to evaporate the solidified air, the melting point of which was —218° Centigrade.

The brilliant orb of the sun, divided by a ledge of rock at the summit of the distant crater-rim, shone with a ghostly effect through the falling "snow." Soon there was but a thin line of light left, then naught but a twisting prominence of red flame. As the latter vanished, we were once more enclosed by the cimmerian blackness of space, while, above, the blazing, diamond-pointed stars flamed out across the sky anew.

When an hour had elapsed, the Baron instructed me to call the earth, while he prepared to release the flare. (This was a bomb weighing nearly a ton which contained a flash mixture of magnesium and potassium chlorate.) Three seconds later came the answer.

"Signals as strong as ever. Where are you now?"

"In the crater of Tycho, on the moon's surface," I told him, "and about to set off the flare. Are the terrestrial observatories watching?"

"Every telescope in the western hemisphere is trained on the lunar globe! The one hundred inch and sixty inch reflectors at Mount Wilson, California, the thirty-six inch refractor of the Yerkes Observatory at Green Bay, Wisconsin, all are eagerly awaiting the flash that will be proof of the culmination of your glorious and courageous adventure."

"Good. I will tell you just as Baron von Sturmfeld drops the charge."

Even as I spoke, the *Stellarite* was rising. Von Sturmfeld halted at a height of ten miles, once more in blazing sunshine, and then sped westward. As we came over Tycho's western rim he pushed a button on the control panel that operated a trip, releasing the enormous flare. A silver streak flashed beneath us in the brilliant light; falling moonward, it disappeared in the shadow.

"There it goes!" I told the distant radio operator.

An instant later, as we looked down from the pilot cabin windows, the most appalling gush of white flame I had ever seen leaped up. Rocky crags, tumbled peaks, and desolate plains all sprang into sharp delineation as the two thousand pound missile of contracted light burst.

Again the three second wait and then the excited operator's voice:

"I saw it myself with a pair of field glasses! A bright white flash of light on the dark half of the moon, just beyond where the sunlit part ends." He paused a moment.

"Two reports are here, one from Mount Wilson, and the other from the Yerkes Observatory. Your signal was observed simultaneously by both. Your claims are amply confirmed; I congratulate you." Baron von Sturmfeld took the microphone.

"Thank you," he replied. "Your kind words are most gratifying to us. We expect to return in——" there was a click and the voice of the operator interrupted him. "The President of the United States wishes to congratulate you himself." His voice was replaced by the deep, resonant tones of Samuel Cabot, President of the United States.

"Baron von Sturmfeld, Mr. MacCleod, and Mr. Campbell, let me offer you my heartiest congratulations and felicitations upon your astounding accomplishment. Your name will be engraved upon the rolls of history as the men who blazed the pioneer trail of interplanetary travel. Upon your return I shall recommend you for the Congressional Medal of Honor."

"Mr. President," said the Baron, "your kindness gives us the greatest of pleasure. I and my companions join in thanking you."

"I shall look forward to meeting you upon your safe return to earth." Another click and the President's voice ceased. Von Sturmfeld turned briskly around.

"Now for the return, my friends," he exclaimed, exuberantly.

The *Stellarite* still occupied the position held at the instant the flare was set off, ten miles above the lunar surface. Sun, moon, and earth made a roughly triangular figure, with the earth at the right angle and the hypothenuse separating moon and sun. The lunar surface presented to the earth was therefore half illuminated and half obscured. Our course was plain; the *Stellarite* need merely be directed toward the earth.

Von Sturmfeld fed power into the radicalite reaction motors, and as we flashed upward at an ever-increasing acceleration, I glanced through the rear-vision periscopes at the earth's satellite with mingled feelings of relief and regret; relief that we were on our way back to safety and regret that I was leaving such fascinating territory after so short a visit.

We had been traveling for perhaps four hours when von Sturmfeld sprang to his feet and, glancing hurriedly at the power and cosmic speed indicating gauges, tore out of the room and into the corridor leading to the generator and reaction motor compartment. As he did so, Campbell and I felt a noticeable deceleration of the space flyer.

"What the devil?" exclaimed my companion. "Are we slowing down?"

"You know as much about it as I do," I told him. "Maybe——"

The Baron stumbled through the airtight bulkhead door, his face red with anger. In his hand was a sheet of soiled and crumpled paper.

"Read this!" he grated, extending it to me. I cast a hurried glance over it and then, thunderstruck, gave it a sharper scrutiny. It read as follows, in German:

"Herr Baron von Sturmfeld,

"I have carefully removed all your radicalite fuel supply, save for an amount sufficient to take you to the moon. I trust that while marooned there you will meditate upon the folly of those who cross my wishes, pending your uncomfortable death when your air has been exhausted. *Auf wiedersehen,*

"Hans Barendt."

Knocked in a heap by this astounding note, I could only stare at von Sturmfeld. Campbell snatched the note as it fell from my unheeding grasp.

"Good God! Is what this swine says true, sir?" he exclaimed. The Baron nodded, dully.

"Only too true, I fear. The radicalite is all gone; he made a clean sweep. He didn't do his work as well as he intended, though; we had sufficient fuel to get safely away from the moon. However, the three alternatives left are not much more encouraging."

"What are they?" Campbell asked.

"Simply this; first, our momentum may be insufficient to carry us to the point of neutral gravitation between Earth and Moon, in which case we'll fall back upon the latter and be dashed to pieces. Second, if our momentum takes us to the neutral point and beyond, the *Stellarite* will fall 160,000 miles to the earth and be burnt to vapor with her three occupants by atmospheric friction. Thirdly, if the momentum is just barely enough to take us to the neutral point and no more, we'll fall into the sun! Rather a case of Hobson's choice, is it not, my friends?"

"Is there nothing we can do?" I exclaimed.

"Not a thing in the world, my friend. The situation is this: our power supply is divided into two sections, reaction motors and fuel, and electrical energy in the helium storage coils."

He paused and pushed a button on the meter panel, causing the needle of one of the meters to flick over. It showed thousands of kilowatts of "bottled energy."

"Little good does it do us, however," he continued. "There is no way I know by which we can utilize that electrical energy alone."

"While I make some observations you had best communicate with the earth, MacCleod, and inform them of our predicament."

The announcer at W2XAD was horrified at my news. He reminded me that my voice was being rebroadcasted, and that the whole world had heard. Already the newsboys were shrieking extras on the streets of Schenectady giving the first news of our mishap, he said. He added that he would communicate with the police at once with regard to the possible apprehension of Barendt. As he ceased speaking I noticed that all weight had disappeared and that the microphone remained suspended in the air when I released it.

"We have reached the neutral point," said the Baron, stepping back from the telescope. "In a few moments we will know whether we are doomed to be roasted to death in our own atmosphere or by the sun!"

Ten minutes later he turned to us again.

"Well, my friends, we will meet fiery extinction in approximately sixty-four days. Our momentum is insufficient to take us into the earth's gravitational field; already the *Stellarite* is beginning its 92,000,000 mile fall!"

The next thirty days were a hell of anticipation of the terrible fate that was to be our reward for tampering with the secrets of the universe. Campbell and I passed the time in observations made with the telescope, fruitless endeavors to find some method of escaping our inevitable end, and idle speculation. Communication with the earth continued, although it gradually weakened. By its means we learned that Barendt and two accomplices had been arrested, tried for murder, condemned to death, and were then lynched by a furious mob. They broke into the jail at Mineola, in which the three were held prior to being transferred to the death house at Sing Sing, hung them from lamp posts in the public square, and then riddled their bodies with bullets.

Von Sturmfeld kept to himself in the laboratory at the other end of the *Stellarite*. He would greet us absently as he came in response to our calls when Campbell had prepared a meal, but otherwise we saw little of him. I knew that he was striving to find a means of retarding our headlong plunge into the sun, but paid little heed. Campbell and I had about given up hope and were trying to spend our last remaining days profitably.

Food we had in plenty. The ship had been well stocked, at von Sturmfeld's order, before leaving, in view of a possible emergency, hence we were in no danger of starving. The liquid air supply was ample, assuring us of enough air to breathe until the end.

As the earth receded, its apparent diameter became less and less. From the moon's surface, it appeared thirteen times the size of that satellite as viewed on earth, but now, travelling as we were at a constantly increasing velocity, it grew smaller day by day. Through the small telescope carried by the *Stellarite* the configurations of the continents, as well as cloud formations, were still distinctly discernible, but with the passage of each twenty-four hour period it became less of a globular planet and more of a brilliant green star.

The position of the *Stellarite* in regard to heat and cold was peculiar in the extreme. On one side it received the intollerable radiations of the sun, unhampered by any atmospheric diminution, while on the other existed the awful cold of interstellar space. By means of an ingenious device in which was incorporated the circulation of liquid air from the warm side to the cold, the Baron succeeded in providing an equalizer that distributed a sufficient amount of heat and cold throughout the ship and eliminated all drain upon the reserves of current contained in the helium reservoir.

As the earth's distance became greater, that of the planet Venus grew less. One day von Sturmfeld announced that we would not only pass through the uppermost limit of the Venerian atmosphere, but that the *Stellarite's* path would intersect the orbit of Mercury at about three thousand miles from that bare and rocky planet.

Radio communication with the earth was still maintained, although even more reduced in signal strength. By its means von Sturmfeld informed all terrestrial observatory staffs and astronomers, that as we passed these members of the solar system, observations would be made at close range and relayed back. Even though the *Stellarite* was headed for eventual destruction, much valuable and highly important information might be gleaned before that annihilation was consummated.

Because of the fact that Venus was yet between us and the sun, its disc continued to present gradually varying phases similar to those of the moon. Originally a long distance to one side, its motion along its orbit brought it nearer and nearer. At the time of first visibility, Venus presented a small half-disc; as the distance decreased the disc by degrees assumed a crescent shape, increasing enormously in apparent size. We soon realized that, far from falling into the sun, the *Stellarite* would miss very narrowly, if not collide head-on with, the planet "Venus!"

As the hours passed and the rapidly narrowing crescent spread out more and more in the heavens before us, an eery feeling of disaster commenced to steal over me. The scene from the forward part of the pilot room was indescribably strange; the blazing white crescent loomed ever nearer, while the dark portion of the planet obscured most of the remaining firmament. Away off to the right was the flaming sun; it was evident to all that Venus' strong gravitation field had swung the *Stellarite* very much from its original line of free fall.

At the W2XAD microphone now was Professor Cummings, director of the Mount Wilson observatory, eagerly taking notes and directing our observations. He was in the middle of a long question to von Sturmfeld when Campbell, who had been keeping a close watch on the dark portion of the planet's surface, cried out suddenly,

"Come here, both of you! I see a searchlight!"

All other thoughts driven pell-mell from our minds by this astounding news, the Baron and I sprang to the telescope, at which we took turns in searching for the light. As I gazed through the object glass, at first I could see nothing but blackness.

Then, all at once, as I gradually swung the telescope across the enormous planetary disc, a luminous streak emanating from a round spot of white light cut across the field of vision. As I watched, it swung twice in a tight arc, winked out momentarily, snapped on and repeated its previous performance, and then was extinguished permanently.

"Conclusive evidence of intelligent life upon Venus!" the Baron was telling the 36,000,000 mile distant astronomer. He added, with a grim laugh, "I fear the only way we'll inform them of our existence is by smashing into one of their cities in a very few minutes!"

A crackling, rasping noise now began to "blanket" the radio, and the astronomer's voice commenced to fade. At the same time I became cognizant of a faint, high-pitched whistle, that gradually became a soul-shaking roar. I realized that already we were flashing through the upper reaches of the Venerian atmosphere.

"We are entering the atmosphere of Venus!" von Sturmfield exclaimed into the microphone. "I believe we will penetrate the Venerian Heavyside layer very shortly. Farewell!"

"Farewell!" came the reply, faint and indistinct, after a lapse of six and one half minutes, the time required for radio waves to traverse the 36,000,000 miles to the earth and return. The crackling and roaring increased, and we heard no more from the earth.

It soon became evident that we would miss Venus by about two hundred miles only. Had it not been for von Sturmfeld's marvelous cooling system our fate would have been that of any meteor seen in terrestrial skies on an August night. The *Stellarite* would have disappeared in a cloud of white hot particles and a long, luminous trail in the evening mists.

As it was the interior grew so hot that we were nearly suffocated. Outside we could see that our exterior was blazing white, and that we were leaving behind us a bright streak, like that of a comet.

Campbell "fished around" with the radio dials during the few seconds we had, and suddenly we were electrified at hearing a deep voice, speaking a strange tongue, resound from the speaker. A second later he picked up strains of weird, barbaric music. It could come from nowhere but the transmitters of an intelligent race inhabiting the planet beneath us!

Almost at once we saw that we were leaving the Venerian atmosphere, and therefore were in no danger of collision. Baron von Sturmfeld set to *work* to calculate our new course with relation to the sun. As he did so the *Stellarite* emerged into dazzling light.

Above us was a brilliant blue sky, while below spread the vast green surface of Venus. In the flashing instant available for observation I noted a huge continent, with a sparkling blue sea to one side, while von Sturmfeld, at the telescope, cried out that he had seen a marvelous city.

It was all too short. The sky grew black again, the sun flamed out as before, and across the heavens was flung the starry canopy of interstellar space. The *Stellarite* had left the Venerian atmosphere and was once more traversing the midnight reaches of the solar system.

Several hours later Baron von Sturmfeld announced the results of his computations. He had been in the laboratory at the other end of the ship, and so we had not kept in touch with him the while.

"Instead of falling freely into the sun, as previously, I find now that the attraction of Venus has swung the *Stellarite* into an open parabola. This means that, under existing conditions, we will sweep around the sun in an open curve, a parabola, and retreat into space like any visiting comet, never to return. Instead of burning up, we'll freeze to death.

"However, I believe I am on the track of a remedy for the situation. I have been studying the effect of cosmic rays upon the matter of which this ship is composed; perhaps we may yet be able to return to our homes on earth!"

The next month went by quickly. Flashing ever nearer and nearer the sun, the *Stellarite* crossed the orbit of Mercury at a distance of 1,500,000 miles instead of the 3,000 originally calculated. Through the telescope we could see that its surface was a desolate, furnace-hot, airless waste, with no possibility of life of any sort, much less of intelligent life. Von Sturmfeld would have liked to have relayed this information back to the earth, but in vain; we were unable to re-establish communication subsequent to our passage through the Venerian atmosphere.

As we swung in an arc around the sun the *Stellarite* came so close that it sped through long, slender tufts of the corona most of the way. Weird streamers of light would shoot out and play around us, while everything in the ship would glow and snap with heavy electric charges. I could sense a strange feeling within me, almost as if I were being dissolved into nothingness, when one of these glowing white spears of electric fire surrounded the ship.

But time passed; presently the *Stellarite* had completed her circuit and once more was "outward bound." Von Sturmfeld showed himself only at meals, so much did he keep to his laboratory work. When he did appear he was taciturn and absent-minded, and rarely spoke to either Campbell or me. One day, however, when we were again approaching the orbit of Venus, he burst into the control room with a broad smile on his lean and handsome features.

"My friends, it is finished! I have succeeded beyond my wildest expectations! The method I have worked out will enable us to employ the vast supply of electrical energy remaining in our helium reservoir coils. It makes use of radiation pressure.

"Again I must resort to explanation. It is a commonplace of modern electromagnetic theory that radiation of every kind has a perfectly definite weight. This weight is in every sense as real as the weight of a ton of coal. A ray of light causes an impact on any surface upon which it falls, just as a jet of water does, or a blast of wind, or the fall of a great weight; with a sufficiently strong light one could knock a man down just as surely as with a stream of water from a fire hose.

"This is not mere theory; it is actual fact. The pressure of light on a surface has been both detected and measured by direct experiment. These experiments are extraordinarily difficult because, judged by all ordinary standards, the weight carried is so small that the radiation emitted by a fifty horsepower seachlight working continuously for over one hundred years weighs only about a twentieth of an ounce.

"You will understand, of course, that this applies to any type of radiation, be its form long or short. This pressure, which seems so insignificant in the case of the searchlight, increases as the square of the heat producing it, and, in the interior of the larger stars, is as much responsible as any other cause in producing their enormous size. The radiation pressure serves to force the material of which the star is composed away from the center, just as it does the tail of a comet approaching the sun.

"Now, I reasoned, if we have all that radiation, which amounts to the annihilation of two hundred and fifty tons of matter a minute, why couldn't we put a small portion of it to work, with all that energy streaming from the sun every minute, and all the power aboard the *Stellarite,* we should be able to do something that would remove us from our desperate plight.

"My theory was as follows; the cosmic radiation goes through everything, human or inanimate, yet ordinary visible light goes through nothing but glass and a few similar materials, and through no metals at all, with the possible exception of very thin gold leaf. Again, the cosmic rays exert no pressure, while ordinary light exerts a pressure that is easily measurable. Why not attempt to make an object opaque to the cosmic radiation, to determine whether or not a pressure would be exerted?

"In my experiments in the laboratory in the other end of the *Stellarite* I used an electromagnetic field generated by a special application of one of the cathode ray tubes, originally used in the production of radicalite, that fortunately was brought along. The first object subjected to the influence of this field was a small block of hard wood.

"At the first try there was no result; the block of wood remained motionless where it lay. I attacked my brains for hours, cudgeling them for the bad point in my line of theory.

"Suddenly it occurred to me that if the experiment had worked, there would still have been no result, as the pressure would have been applied equally on all sides. Cursing myself for my obtuseness, I readjusted the field so that its effect would apply in one direction only. Almost holding my breath in my anxiety, for another failure would mean that I was "barking up the wrong tree" (to use one of your American slang expressions), I closed the switch energizing the cathode circuit of the tube.

"For an instant nothing happened, and then, like a stone from a small boy's sling, the block of wood shot across the room, smashed a whole row of chemical apparatus along the bench, and ended up again the steel bulkhead. Here, no longer under the inflence of the field, it fell to the deck. It was confirmation with a vengeance!

"According to the equations I have evolved, there is not only a condition of pressure present, but an actual repulsion. The electrostatic field set up by the tube causes the atoms of any matter within its sphere of influence to vibrate in synchronism, one hundred and eighty degrees out of phase, with the inconceivably high frequency of the cosmic radiations, and in so doing to exert a repulsive effect. In accordance with Equation Nine, the velocity may be varied from zero to a point where it approximates the square of the speed of light, which speed is 186,000 miles per second.

"I fail to understand this last, as it is entirely contrary to Einstein's principles. From the scanty data I have at hand the Fitzgerald Contraction does not apply, either."

"Pardon me, sir," interrupted Campbell, "but would you mind explaining to me just what the Fitzgerald Contraction is?"

"Well," replied von Sturmfeld, "I can best illustrate it by giving a homely example.

"Suppose that you have a rod moving at a very high speed. Let it first be pointing transverse to its line of motion, then turn it until it is at right angles to its former direction, i. e., it now lies along the line of motion. It contracts, and is now shorter than when it was transverse.

"This contraction is exceedingly small in all ordinary circumstances. An example of this is the Earth's contraction due to its speed in its orbit around the sun. Traveling at a speed of 19 miles a second the contraction is only one part in 200,000,000, or 2½ inches in the total diameter of the earth.

"If you were moving at a speed of, say, 161,000 miles per second, the contraction would amount to one half. An object placed across the line of motion would contract to half its length when rotated through 90°. And, under normal holding of the law, as the speed of the object approached that of light the length would become zero and the mass infinity. Thus, it would be the "limiting velocity." This is the law which is abrogated in our case, through some new physical function at which we can only guess!

"Do you understand?"

"Fairly well, sir," replied Campbell.

"Then we must get to work; it will be quite a task to place these connections to the hull of the *Stellarite!*"

It was indeed a task; when the work was complete a day and a half of terrestrial time had been consumed. The Baron rigged up the cathode tube in the pilot room and wired another panel so as to have complete control over the units in all parts of the ship.

"We are now free from all effects of acceleration," he stated. "This field will act on the atoms of our bodies as well as those of the ship, so that as the latter accelerates we will do likewise. We will therefore be enabled to attain instantaneously the highest speeds, or make the sharpest turns, without experiencing the slightest discomfort."

The parabolic curve of our present path would carry the space flyer across the earth's orbit far behind the latter, which would have traversed many million miles on its circuit of the sun since our abrupt departure four months before. It was a simple matter for Baron von Sturmfeld to make his calculations and, with the new propusion machinery, catch up. He called us to the telescope when all was in readiness.

"Observe, my friends; you can see the earth for yourselves. Having progressed 192,600,000 miles on its orbit of approximately 578,000,000 miles, it is now, roughly speaking, 96,300,000 miles from the *Stellarite.*"

"I looked, to behold a tiny green disc that appeared about the size of Mars as viewed from the earth. Barely visible beside it was a point of light that was, so the Baron informed us, the moon.

A wave of nostalgia swept over me. Would I ever again see the green trees and shining blue waters of the planet on which I was born? Time was beginning to hang heavily, after four months of nothing but the eternal blackness of space and the pitiless glitter of the stars for company. Would the Baron succeed, or were the crew of the *Stellarite* doomed to wander on through the distant reaches of the void, outcast and forlorn, until their food and air supplies became exhausted and they were one with eternity?

"Note the time," came von Sturmfeld's order, interrupting my revery. I glanced up and saw that it was ten-fifty A. M., New York time.

"Gentlemen, prepare yourselves!"

He pressed three keys on the panel and closed a switch. Instantly a feeling of sick giddiness coursed through me, while my skin commenced to tingle. Glancing at von Sturmfeld and Campbell, I could see that they were experiencing the same peculiar sensations.

As I gazed through the transparent dome above me a fantastic thing became apparent; the sun had changed from his customary yellow to a deep reddish hue!

"Good Lord, sir," I exclaimed. "What's happened to the sun?"

"That, Mr. MacCleod, is the 'Doppler' effect," replied the other. "When an observer and a source of radiation are moving relative to each other, a shifting of frequency and spectral lines is noticed toward either the violet or red end of the spectrum, according as the two are approaching or receding. In our case it is the latter. Of course the speed has to be enormous to cause any noticeable effect."

He threw open the switch once more and released the three keys on the board. Coincident with this the sun resumed its normal hue, while, far more apparent to us, a brilliant greenish light poured in on the opposite side. I was stricken with amazement, for through the glass I could see the enormous semi-circle of a huge planet; a planet that had not been there a second before.

Bewilderedly I traced the familiar outlines of continents and seas, and suddenly I realized I was looking at the earth. An earth that was, to judge from its apparent size, a scant twenty-five thousand miles or so away! The clock said ten fifty-four and a half.

"Gentlemen," announced von Sturmfeld, in a pardonably grandiloquent manner, "our velocity a moment ago was twice that of light; the *Stellarite* and its crew traversed 96,300,000 miles of space in four minutes and a half. The earth lies before us, barely a stone's throw, in spacial figures!"

A second while we gazed reverently upon the planet, and then, as if by common consent, we fell upon our knees and gave thanks to God for having delivered us from our terrible predicament.

The skin of our bodies was tanned a deep mahogany from the action of the cosmic rays, which had had an effect on the epidermis similar to that of violet and ultraviolet light. Otherwise than that no ill effects could be noticed.

Springing to the radio, I energized the vacuum tube filaments, grabbed the receivers, and turned in on W2XAD's 19 meter wave. A talk of some kind was being broadcasted; I'd soon put a stop to that!

The station staff were supposed to have a radio receiving set continually tuned to our frequency. If they had not yet given up all hope and discontinued it, I should still be able to "raise" them.

Reaching for the microphone, I sent out a long call, using our full power of fifteen kilowats. When I had repeated this twice I heard the announcer, who was announcing a change in program at the fifteen minute interval, gasp and then yell into the microphone:

"Folks, I'm getting a call from the *Stellarite! Stellarite,* where are you? Can you hear me?"

"Sure can," I replied, chuckling. "We're now about twenty-five thousand miles from the earth's surface, proceeding under low power. I suppose we were given up for lost months ago?"

"Everybody thought you'd collided with the planet Venus, when your radio signals stopped!" he exclaimed. "What happened to your communication system?"

"It cut off after we passed through the Venerian atmosphere," I told him. "Why, I cannot say. We're coming down now; I'll keep in touch with you from time to time."

The gigantic disc that filled the entire sky before us was awe-inspiring in the extreme. The light reflected from its surface was a strong greenish-yellow that was soothing to the eye, in comparison with the terrific glare of unrelieved sunlight we had gazed upon for so long. We had swung around in our headlong flight until the *Stellarite* was almost directly in line with the earth and the sun, and so a "full" earth was presented to our fascinated gaze.

The space ship was still at a distance sufficiently great to give it the appearance of a spherical body, but already our pace was once again so terrific that it was rapidly flattening out. We could see the western half of Europe, the broad expanse of the Atlantic Ocean, and the eastern edge of America. Von Sturmfeld had so directed the *Stellarite* that its flight was at an angle, with the planet's surface, that would bring us directly over the Middle Atlantic states. From this position it would be extremely simple to locate Long Island and Roosevelt Field.

So close were we now that the earth seemed a huge, concave dish set in the sky above us. And we were again commencing to lose the impression of looking up; rather did we seem to be suspended at an enormous height, bottom side up. I grew dizzy at the thought. Suddenly the windows clouded; the *Stellarite* was plunged in a whirling mass of vapor. Almost instantly this passed, to be replaced by the same clearness that had prevailed before, but now the sky was commencing to take on the old, familiar blueness. As the density of the air increased, the stars faded rapidly from view, and I could feel the interior of the ship grow warm, as the atmospheric friction tore at the hull. The Baron adjusted for this with the cooling machinery.

Now we were in the vicinity of Newfoundland, still traveling well over a mile a second, but slowing rapidly. I called the operator at W2XAD, informing him of our position.

"You will find Roosevelt Field jammed with countless thousands," he replied. "You are to be fêted, paraded, and Lord knows what not. I wish I might be there to greet you personally."

Now we were crossing Massachusetts Bay, and the long, out-thrust arm of Cape Cod. Through the telescope I could easily see the Memorial Lighthouse on the tip end of the Cape, at Provincetown. Boston was a tiny smoke blot sixty miles across the Bay.

Mile after mile of the Atlantic coast slipped by; Narragansett Bay, Martha's Vineyard, and Block Island Sound, and then the slender hundred and thirty mile stretch of Long Island with the goal at its end and almost in sight.

At last the *Stellarite* was over Roosevelt Field and dropping slowly toward the ground. The field was simply black with swarming thousands. I remarked that it was lucky we had no whirling propeller to worry about!

As Von Sturmfeld brought the *Stellarite* lightly to earth I could hear the continuous, sustained roaring of the crowd through the walls of the craft. We paused

(*Continued on page* 1144)

Stallion's Trappings

By DEAN COLLINS

THIS is quite an interesting study, where the ideas of one man are absorbed through a surgical operation, and the author tells of the effect produced.

AND what do you want, Professor Shea, in return for this million and a half inheritance? A poor college professor, suddenly come into a fortune, doesn't dump the whole thing into the lap of a practical stranger unless he expects equal or greater value in exchange. What is it you want?"

"I want Mortimer Judd's brain."

Dr. Malavan did not show surprise. He was not surprised—unless it might be over the fact that Professor Shea in some way had found out about his agreement with Mortimer Judd.

He did not ask him any of the obvious questions that might have been first on the lips of any other man—any man who did not have it in his power to grant the fantastic demand.

"What will you do with it?" he asked instead.

Professor Shea leaned forward with an expression at once craven and grim.

"I think we may pass all the preliminaries and hedgings that ordinary men would use, Dr. Malavan. I attach no value to the sudden inheritance that came to me from an uncle I have never seen, unless it will purchase the one thing I want and shall not have except through your scientific skill.

"It doesn't matter to us how I learned of the agreement whereby Mortimer Judd gave you his brain for experimental purposes, in return for the additional twenty years of life that your skill was able to furnish him. It doesn't matter how I know that the lease of life you gave him is now expiring. I don't mind telling you at leisure, after we have reached an agreement.

"Two things are important now. You can use a million and a half in your further experiments. I can use Judd's brain—his fierce, ruthless, powerful brain which has been the instrument by which he has won and held his mastery over men and things and events. I can use it to win for me all the things in life, which my scholar's brain could not win for me.

"I have been a learned beggar all my life, mildly respected for my erudition, utterly ignored as a man by my fellow men and women, brow-beaten and despised by the woman who married me, bullied by faculties and clerks of the college.

"I want to mount that beggar upon the great stallion brain of Mortimer Judd, and ride it to mastery as he rode it."

Dr. Malavan opened his lips, but Professor Shea checked him with a gesture.

"I offer you more than a million and a half, Dr. Malavan. I offer you also my skull as an incubator in which to nourish and continue the life of that brain, to follow and study its further conquests, as you have followed and studied them for the past twenty years—ever since you made your satanic pact with Judd.

"Surely that amazing instrument of power, mounted and operating under your observation, is of more value to you that it would be if pickled in formaldehyde, or preserved in mere, unfunctioning aliveness in one of those other solutions that you know."

Dr. Malavan did not beat about the bush.

"What about you? I know more than any other living man about what you ask me to do; only one thing I do not know. I do not know where or how to lay hold of the force that functions through the brain instrument. You realize that you may be abandoning your personality and substituting that of Judd, if you go through with this?"

"Perhaps! I take that chance. It is my conviction that I shall keep the *Me,* after you have scooped the brain out of my skull and set that other brain in its place. Just the cerebrum of Mortimer Judd. That's all I want. Install it in my skull, connect it with my cerebellum and the rest of my brain and nerve tissue. I have a conviction, irrational but sure, that my personality will flow up to possess and utilize this new instrument you give me."

The two mad men of genius sat looking at one another; understanding one another.

Malavan spoke.

"Arrange tomorrow for the transfer of the money to my account. Mortimer Judd will be dead officially Thursday morning. Somehow you have learned that I am able to do things with brain and nerve tissue that no other person can do—things that the best approved scientists will tell you are mechanical and physiological impossibilities. We pass that for what it is worth. Come to my private suite of laboratories Wednesday at four P. M. I have two assistants I can trust implicitly. I need them to stand by while I make the transfer."

"Tomorrow you shall have the inheritance I got from my uncle," said Shea rising, and taking his hat, without offering to shake hands.

"And Thursday morning you shall have the brain of Mortimer Judd in your skull." Dr. Malavan grinned humorlessly. "And Mortimer Judd's family will be preparing to give *your* brain a costly and elaborate funeral along with that other remnant of Mortimer Judd that I have kept alive twenty years longer than it should have lived."

* * * *

The college faculty sent flowers to the hospital and a committee visited and condoled with Professor Shea, over his sudden and severe illness.

Fortunate, they pointed out, that such a wizard as Dr. Malavan had been available to operate. Otherwise doubtless Professor Shea would not be alive at this moment.

Professor Shea let them talk.

In due time, he was convalescent—was well.

It was only a week after he resumed his place in the faculty meetings that his confreres awoke to the fact that a new spirit seemed to animate Professor Shea.

In the second week the other members of the faculty were obliged to look around for some other permanent worm to tread upon, for the worm, that was Professor Shea, seemed to have developed fangs.

Professor Shea's open friendship with Dr. Malavan caused some criticism, but they learned not to be too open about this.

When Professor Shea's wife, the woman who had browbeaten him for more than thirty years, suddenly filed suit for divorce on charges of cruelty—and when her testimony came out—they did band together to demand his resignation.

Professor Shea laughed and resigned, moved off the campus and launched himself into a financial career that became a miracle of the year.

Financiers, business men, folks in the outer world who had been breathing easily for the first time in twenty years since Mortimer Judd died, found stalking once more amongst them a wolf, fiercer, more ruthless, more dominating even than Judd had been.

They hated him as no man had been hated since Mortimer Judd died.

Professor Shea had had few friends before. He had none now. He did not care; and once a month he went with Dr. Malavan on a week-end trip to the doctor's laboratory lodge in the mountains west of the city.

Dr. Malavan found keenest interest in the blending of personality that he detected in his masterpiece.

"We shall find yet, Professor Shea, how much of the personality is intrinsic in the instrument through which it works, and how much of it lies behind the instrument, untouchable by my scientific skill—at present."

Professor Shea agreed that this might be possible. "But that is not important to me, doctor. You can enjoy yourself speculating on the matter. I am too busy riding this stallion you have sold me, trying to find the limit of its strength and its ferocity. I have not found it—yet."

And with the widening of the circle of Professor Shea's manifold enterprises, grew a widening circle of ruin among what he termed the "unmounted beggars," in the business world in which he had reared himself as a colossus.

Then he missed the week-end rendezvous with the doctor.

Dr. Malavan without telephoning or waiting, hurried back from his lodge and to the Mortimer Judd mansion—the mansion that it had been Professor Shea's whim to buy and inhabit, when his fortunes rose to a point that made the deal possible.

Police were there before Dr. Malavan, and men from the coroner's office.

Dr. Malavan did not waste time.

"Assassinated by some business enemy?" he asked the first officer he met in the hall.

"No doctor! Suicide! Late last night."

"How?"

"Put a shotgun in his mouth, pulled the trigger with his boot, and blew the top out of his head."

"Motive?"

"Hard to tell. Left a note, addressed to you. We can't make out just what he was aiming at. The chief in there has it."

Dr. Malavan did not look at the contoured sheet that covered the body, but asked permission to see the note. He read it.

"Hm-m-m! No doubt! *Twenty years of them!*" he remarked half to himself.

The coroner's assistant took the note from Dr. Malavan's hand and began puzzling once more over the meaningless line scribbled upon it.

"I could no longer endure his memories."

THE END

REVERIE

By Forrest Elliott

Lay my wing-suit out tomorrow,
  I am going to the moon;
For I know I there can borrow
  Silver beams to fill this room.

And while there I will consider
  If 'twould do for permanence;
Then return and take you thither
  To enjoy our recompense.

Lay my wing-suit out tomorrow,
  We've endured and here's the end;
I shall see that no more sorrow
  Our existence shall offend.

The End

Flame-Worms of Yokku

By Hal K. Wells

THIS story takes us to the planetary world and tells us of the space ship "Falcon" that is bound for the planet Mars. Its description of the lonely region of space is most impressive and we feel that we can unhesitatingly recommend this narration to our readers.

Illustrated by MOREY

WITHIN the central lounge-room of the *Falcon*—space-yacht from earth bound for the cyllogen mines of Uranus—three men faced each other in a tense tableau of smoldering menace.

The *Falcon* belonged to the two earth-men in the little group—Eric Larsen and Bart Wheeler. They were interplanetary adventurers, whose close friendship had been sealed by perils mutually shared on every habitable world in the solar system. Both were magnificent physical specimens.

Larsen, blond as his distant Viking forebears, had the lithe strength of a tiger in his tall body. Wheeler's dark head barely reached Larsen's shoulder, but his stocky body had the spreading shoulders and massive chest of one of earth's ancient wrestlers.

The third member of the trio was Dalo Yok, Martian navigator of the *Falcon*. In any physical combat either Larsen or Wheeler could have broken Dalo Yok's thin body in half. Yet for the moment they stood helplessly at bay before the menace of the acid-gun in the blue-skinned Martian's hand. Its spurting jet of acid-mist would crumble flesh and bone into steaming liquid, like butter melting before the thrust of a white-hot poker.

Larsen's eyes were fixed upon Dalo Yok's face, trying to fathom the reason for this utterly unexpected attack. During the twelve months that the Martian had been their navigator he had always been loyal, quiet, and as coldly efficient as an automaton. Those were the very qualities that made Martians in such great demand as space-navigators. Combat and the other more adventurous phases of exploration were left to the warmer-blooded races of Earth and Venus.

On the present trip Dalo Yok had remained quietly in his quarters in the navigating-room forward until barely two minutes ago, when he had come charging suddenly back into the lounge, confronting Larsen and Wheeler with his acid-gun and gibbering away in guttural Martian like a madman. In that excited flow of words the bewildered earth-men had been able only to make out repeated references to "Yokku, lost dead sun of Ran Yok."

Larsen's gaze studied Dalo Yok's face only briefly before he found that which he was seeking. The reason for the Martian's sudden outburst was clearly written in the slight greenish tinge of his yellow eyes and the peculiar oily sheen of his blue-skinned face. Those physical signs mean only one thing. Dalo Yok had been chewing *luhna* weed, the forbidden narcotic plant of Mars, which for the time being drives its devotees thoroughly and hopelessly insane.

Dalo Yok snarled as he met Larsen's steady gaze. He abruptly shifted his tirade from Martian to English.

"Earth-men, no longer are you masters of the *Falcon*," he boasted. "From now on I shall dictate our course, and it will be a course that but one other man in all history has ever dared travel. We go to seek the lost dead sun of Ran Yok—that fire-ringed world of mystery to which he gave the name of Yokku. I have the charts which everyone believed were lost with Ran Yok's death.

"Do you remember how your scientists of earth laughed down Ran Yok's claims after he came hurtling in, dying and alone, from his great voyage into outer space? They said that his story was the mere fantasy of a dying madman, and the rest of the solar system believed them. Ran Yok's memory became a laughing-stock. It is left to me, son of Ran Yok, to vindicate the vanished honor of the House of Yok.

"The chance for that vindication is now at my hand. The *Falcon* shall follow Ran Yok's historic trail, on beyond Uranus, beyond Neptune, and on for two billion miles more through the black void of outer space, until we find again the lost dead sun of Yokku."

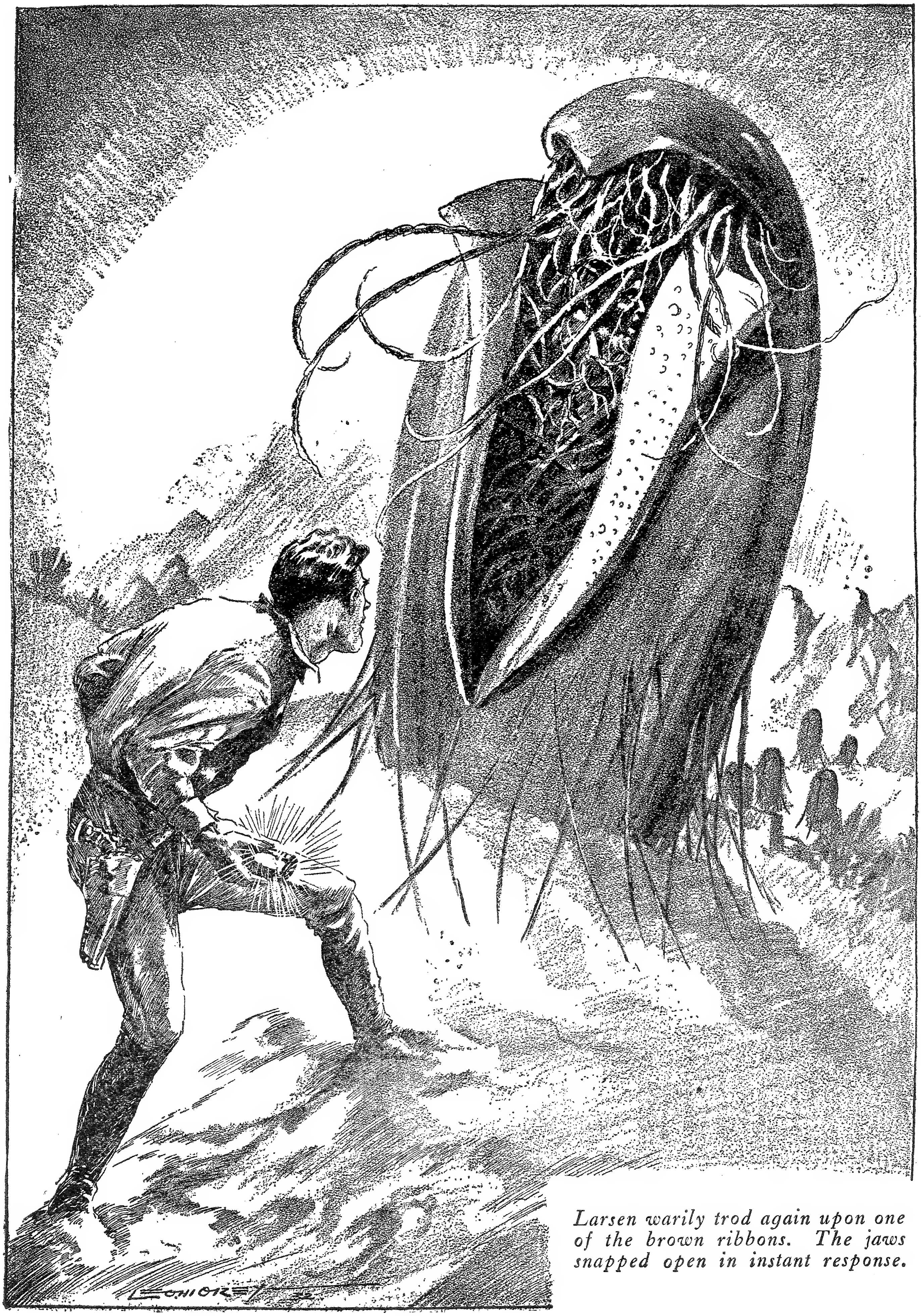
The Martian drew a small silken flag from his belt-pouch and shook its folds free for the earth-men to see the intricate monogram of ancient Martian script embroidered in gold against a black background.

"The banner of the mighty House of Yok!" he shouted exultantly. "We shall plant it upon the loftiest peak of Yokku. There it shall proclaim to the entire Universe that Ran Yok was neither liar nor madman, but the greatest space explorer of all worlds and all time!

"But enough of this!" Dalo Yok checked his harangue abruptly. "I am wasting valuable time." He gestured imperiously with the barrel of his weapon toward the closed metal door behind them. "In the cage-room, Earth-men. There you can remain safely out of my way until we land on Yokku. Hurry—I have work to do."

A glance of swift relief passed between Larsen and Wheeler. This was a better break than they had dared hope for. The cage-room—a bare steel cell used occasionally for transporting live animal specimens from other planets—had a new feature of which Dalo Yok knew nothing.

The heavy door of the cage-room locked automatically and until recently could only be opened from the outside. But while the ship was in repair dock on earth a month ago the accidental closing of the door had made a pris-



Larsen warily trod again upon one of the brown ribbons. The jaws snapped open in instant response.

oner of Wheeler for nearly twenty-four hours before he was finally found. He and Larsen had promptly done away with any future danger of that kind, by installing auxiliary mechanism that allowed the lock to be opened from the inside by anyone who knew the combination.

Trying to keep from seeming too suspiciously acquiescent, Larsen and Wheeler retreated backward to the cage-room, followed by Dalo Yok with alertly leveled gun. A moment later they were inside the cell and the door clicked shut and locked after them.

Wheeler promptly reached a hand toward the new mechanism to unlock the door, but Larsen quickly stopped him.

"Not too fast, Bart," he whispered. "Wait till we're sure Dalo Yok has left the lounge. He'll have to return to the navigating-room to start the bow-generators for the propulsion rays, if he's going to swing us around Uranus. When we feel the vibration of the generators starting, we can sneak out and stalk him. Till then, let's get away from this door. He might take a peek in through the observation-panel and get suspicious."

Wheeler shrugged his shoulders in reluctant assent to the wisdom of Larsen's plan, and followed him over to the opposite wall. They sprawled as comfortably as they could on the bare metal floor, silently waiting for the vibration of the generators.

Larsen's thoughts were busy with memories conjured up by Dalo Yok's mention of Yokku and Ran Yok. Five years ago—back in the Summer of 2149—both of those names had figured sensationally in the news of the day.

Ran Yok, an obscure Martian astronomer, had advanced the theory that out in space, far beyond the known limits of the solar system, there was a dwarf companion to the sun—not merely another planet, but a small dark sun warmed by the smoldering remnants of its own original fires, and possibly with portions of its surface-crust habitable by living beings.

It was plausible enough as a theory. A number of men had advanced it before Ran Yok. The great majority of stars have stellar companions, and there was no particular reason why the sun should be a freak hermit. It was admitted that a small solar companion, even though self-luminous to a considerable degree, could exist far out in space and never be discovered telescopically.

But Ran Yok went farther than mere theory. He claimed to have charted the dwarf companion's actual position, two billion miles beyond Neptune's orbit. He offered a maze of figures to support his assertion, but after a cursory glimpse at them the leading scientists of both earth and Mars dismissed Ran Yok' claims as being too vaguely theoretical to even merit consideration.

Ran Yok then tried to induce space explorers to voyage out into the uncharted void in search of the dead sun, but he failed utterly. Space travel within the bounds of the solar system itself was scarcely a century old. To leave the familiar realm of the known planets and go hurtling out two billion miles into the black void of interstellar space in search of a tiny dim world whose very existence had yet to be proved—that was a proposition before which even the hardiest of space explorers frankly quailed.

Finally in sheer desperation Ran Yok secured a spaceship himself and with three companions set out. Six months later his ship came roaring in out of the Martian sky and crashed to the ground completely out of control. Opening the wreck, investigators found Ran Yok's three companions gone and Ran Yok himself a raving madman who screamed incessantly of "Worms—flame-worms—giant flame-worms of Yokku!"

He was so badly injured that he died while they were removing him from the wreckage. It was believed at that time that his charts and calculations had perished with him. The ship's log was nearly destroyed in the crash, but one of the few entries remaining legible seemed to indicate that Ran Yok had actually found the sun's dwarf companion—a strange habitable little world lighted and heated by a ring of fire encircling it—and had given it the name of Yokku.

For a brief time Ran Yok became a popular hero in the sensational press. Then his story gradually crumbled before the cold logic of Earth's scientists, who pointed out that Ran Yok was a totally inexperienced space explorer, and that there was not a shred of actual proof that his entire story of Yokku was not a mere figment of a madman's disordered brain.

In the reaction that followed, Ran Yok's story was completely discredited. The most commonly accepted belief regarding his tragic voyage finally came to be that he had really landed upon some remote part of the solar system—possibly one of the three unexplored moons of Jupiter. Losing his three companions in some tragedy there, his brain had given way under the shock and he had headed back home, a pathetic madman with a "Yokku" obsession.

Wheeler broke in upon Larsen's thoughts. "Too bad we didn't know Dalo was old Ran Yok's son. There must be a taint of lunacy in the whole family."

"We had no reason to guess it," Larsen answered. "Yok is a common enough family name on Mars. I wonder how long he's been brooding over his father's wrongs and trying to plan a way to seize the *Falcon?* Probably ever since he's been with us, but never quite got nerve enough up to really start things. Then this trip he indulged in a private little *luhna* jag, and finally got himself hopped up to the point where he had enough courage to try his hare-brained—"

Larsen broke off abruptly as the metal floor suddenly began the vibration that told of the generators being started. Dalo Yok was safely back in the navigating-room.

The two men quickly rose to their feet and started for the door. They had barely taken the first step when they detected the telltale odor of burnt cinnamon. Their startled glance up at the ventilator high in the forward wall showed a pale amber mist streaming down into the air of the little room. Lethygen—the instantaneous and perfect anaesthetic!

With faces blanched in consternation, they flung themselves forward in a last desperate lunge for the door. But midway in their rush their muscles collapsed under them and they crashed helplessly to the floor.

The lethygen apparatus in the ventilator was for use when animals in the cage-room became too violent. Under the influence of the amber mist a victim could be kept in a state of suspended animation for weeks at a time. The release switch for the lethygen was in the navigating-room. Dalo Yok had apparently turned it on to rid himself of any further bother with his prisoners during the trip.

Larsen's last conscious thought was one of sheer horror at the situation in which he and Wheeler were now placed—helpless prisoners lying there in a stupor of living-death, while the space-ship hurtled on toward the unknown void of outer space, with only the mad whims of a drug-crazed Martian to direct its flight. Then every thought faded from Larsen's brain in the final oblivion of the lethygen.

HE struggled slowly back to consciousness with a vague impression that something was wrong in his surroundings. He opened his eyes and saw that the floor was sloping at an angle that had slid both himself and Wheeler down against one wall. The *Falcon* had obviously landed somewhere, and the landing had been so badly botched that the ship now rested nearly over on one side.

Wheeler was already awake. The two men clambered stiffly to their feet. A moment's manipulation of the door's mechanism released the lock. They crept cautiously out and advanced through the deserted lounge toward the navigating-room. Their first glance inside showed them that caution was no longer necessary. Dalo Yok had left the *Falcon.* Both the inner and outer doors of the air-lock were still slightly ajar where the Martian had gone out.

Wheeler entered the air-lock to look outside for Dalo Yok. Larsen made a hurried, anxious examination of the intricate control panels and mechanisms in the navigating-room, to see how badly damaged they had been in the *Falcon's* landing. It had been the jar of the landing that had put the cage-room lethygen apparatus out of commission, for the switch was still in the "on" position. A few other minor connections in the navigating-room were broken, but Larsen found no serious injury anywhere.

Then suddenly he discovered something that brought a smothered gasp of dismay to his lips. The anode-bar in the central control panel was gone. The six-inch piece of intricately fashioned marabite metal had been clumsily disconnected from its terminals and removed bodily. Without that anode-bar it was impossible to even start the ship's propulsion ray generators.

Larsen silently heaped maledictions upon the absent Martian's head, as he realized what had happened. With drug-inspired cunning, Dalo Yok had made sure that no one would move the ship in his absence. Wherever the Martian now was, the anode-bar was with him.

Wheeler stepped back in through the air-lock with an expression of frank amazement upon his deeply tanned face.

"Looks like that Martian idiot did just what he threatened to do about taking us to Yokku!" he announced grimly. "There's the ring of fire in the sky that old Ran Yok wrote about in his log, and from what I can see of the stars we're somewhere out about two billion miles beyond Neptune. We must have been in that lethygen sleep for weeks."

"Did you see anything of Dalo Yok?" Larsen demanded anxiously.

"Sure. I looked out just as he was passing out of sight through a gap in the cliffs. He's so full of *luhna* now he could hardly walk. Why so anxious about him? There's no particular hurry in going after him."

"Oh, yes, there is!" Larsen answered grimly. He pointed to where the anode-bar was missing. "We've no reserve bar to replace that one, and no possible chance of getting one, if we're out beyond reach of solar system supply-depots. We've got to catch Dalo Yok before something happens to both him and the bar. Otherwise we may be marooned here for the rest of our lives."

As he spoke Larsen was already handing down full equipment for their belt-harnesses from the racks in the room. He passed up the acid-guns because their range was too short for effective outdoor work, but included nitrolite pistols, selithium tubes, hand-axes, plenty of reserve ammunition, and even a tin each of concentrated food capsules.

"No telling what we'll run into out there," he commented, "so we'd better go well prepared. Remember what happened to Yokku's first visitors. Three of them were never heard from again, and the fourth returned to Mars a raving madman."

"What about one of us staying here on guard in case Dalo Yok circles back to the ship?" Wheeler asked.

"No use doing that," Larsen decided. "Finding that lunatic will be a two-man job, I'm afraid. He can't move the ship if he does circle back here. Any fool can dismantle that anode-bar, but it requires an expert to set it properly in place again. Dalo Yok couldn't get it adjusted right in less than a week, even if his wits weren't hopelessly muddled with *luhna.* Come on, let's go."

Stepping out through the air-lock, they swung the heavy outer port shut and locked it behind them, to keep any possible invaders out of the ship during their absence. Larsen caught his breath as he saw for the first time the starkly brilliant beauty of the scene around them. Like Saturn, Yokku was surrounded by a giant ring, but Yokku's ring was one of pulsing fire. Squarely overhead the great sun-arch swept from horizon to horizon in a rainbow ribbon of shimmering flame, with alternate stripes of livid blue, emerald green, and golden yellow.

The *Falcon* had landed near the edge of a vast level area of sparkling white sand that was dotted here and there by clumps of gray feathery vegetation. Some two hundred yards away a range of high cliffs rose, jagged and sheer from the plain, in titanic masses of crystalline stone, whose naked surfaces gleamed like giant sapphires under the vari-colored rays of the sun-arch overhead. Nearly opposite the *Falcon's* position the towering ramparts were briefly broken in a narrow pass that gashed straight back into the range.

Wheeler pointed to where the hundred-foot walls towered on either side of the narrow portal. "Dalo Yok went through there," he said. "He hasn't over ten minutes' start on us at the most. With any luck at all, we ought to catch him."

They started out across the fine white sand of the plain. Not a frond of the feathery vegetation stirred in the still, dry air, and there was not the faintest trace of a cloud in the arch-lit sky overhead. Even the air seemed devoid of the tiny dust particles that give planetary skies of the solar system their azure hue. Yokku's sky, save in the direct vicinity of the sun-arch, was a dark gray-black in which the stars shone clearly visible.

Larsen glanced swiftly at the stars and saw that Wheeler's first report had been correct. There was no doubt that they were on Ran Yok's lost sun. That glowing yellow star down near the horizon was their own sun, now so far distant that it did not show as a disc to the naked eye. Small wonder that Yokku had never been discovered telescopically. Its gravity indicated that it was very little larger than earth itself. It was doubtful if the telescopes of Earth or Mars could discern that tiny radiant speck so far out in space even if they were trained directly on its position.

With every step the men took toward the cliffs, they were impressed anew with the utter strangeness of the flora and fauna around them. The seemingly fragile stems and feathery fronds of the gray vegetation proved upon contact to have the unyielding hardness of hammered metal. There was the same striking metallic suggestion everywhere in the life that teemed in the thickets.

Crab-like crustaceans with armored backs that sparkled as though encrusted with flakes of mica, clambered with spidery legs about through the branches. Through the tops of the thickets weirdly beautiful flying things drifted in graceful flight, looking like golden nuggets set in the center of gossamer webs of spun silver.

Scores of small lizard-like quadrupeds scampered over the sand under the gray bushes, with chunky bodies whose rough surfaces glittered dully like living nuggets of copper. The manner in which the brutes fed was spectacular proof of how utterly different Yokku's life forces were from those of planets in the solar system.

Set in the center of the bulging foreheads on the lizard-thing's hideous heads was a triangular group of three slender rod-like antennae. When a certain frond of the gray vegetation was selected to be devoured, strange pencil-beams of pale light shot from the tips of the antennae, one ray blue, another yellow, and the third green. As the rays came to a focus on the bit of vegetation a swift and startling reaction occurred. The vegetation glowed in fiery incandescence for a brief second, then vanished in a small dense cloud of swirling oily black vapor shot through with leaping tongues of scarlet flame.

Abruptly the rays from the antennae ceased, and the black vapor swiftly thickened and coalesced into a shapeless blob of viscid ebony. A long slender tongue, three-pronged at the tip in grotesque parody of a hand, darted forth from the lizard-things mouth and snatched the molten black lump with it as it returned and the bony jaws again snapped shut.

The sight recalled to the minds of the men with new force the words Ran Yok had screamed in his last delirium. With the existence of Yokku itself already proved to be actual fact, there was no reason to doubt that Ran Yok had also spoken truth when he had screamed his horror of the mysterious monsters he had called "Flame-worms—giant flame-worms of Yokku."

Wheeler and Larsen searched their surroundings with redoubled vigilance as they neared the crystalline blue cliffs, but they saw nothing more formidable than new droves of the small lizard-creatures that fled in blind panic as they approached. Then they entered the pass and for the moment forgot all thought of Ran Yok's flame-worms as they concentrated their full attention on the problem immediately at hand. Somewhere on the other side of that narrow pass through the cliffs was wandering a hopelessly crazed Martian, carrying with him in his blind flight a tiny bit of metal that represented their only chance of ever leaving this sinisterly beautiful world of metal lizards and crystal mountains.

The gap was a thirty-foot-wide strip of white sand, that cut straight back for nearly two hundred feet before opening into another valley. Near the center of the pass its narrowness was accentuated by a great overhanging area that bulged out from one of the side walls until it more than half closed the space overhead. Wheeler and Larsen passed the overhanging area, and another sixty feet brought them to the other end of the pass. Before them was a circular shaped level valley, approximately a quarter of a mile in diameter, and almost completely walled in by the jagged mountains that rose in glittering splendor on every side.

Their first glance showed them that if Dalo Yok were still within the valley he was safely trapped. The only exit from the place was through the pass itself. On every other side mighty cliffs of sapphire crystal arose sheer and naked for hundreds of feet.

They searched the valley floor without seeing any trace of the Martian among the many masses of vari-colored crystalline boulders that littered the white sand. Then as they emerged from the shelter of the pass and started forward, Dalo Yak made his presence known with startling suddenness.

They were barely clear of the walls of the pass, when there came the crashing explosition of a nitrolite bullet against the cliff so near them that they were flung to the ground half dazed by the concussion. Scrambling madly to their feet, they succeeded in gaining the shelter of a rock heap just as another bullet burst close behind them.

From their shelter they soon located Dalo Yok's position among the jagged litter of a high heap of rocks near the valley's center.

"It shouldn't be hard to drive him out of there," Larsen commented confidently. "You stalk him from this side. I'll take the other. Whatever you do, be careful not to make a direct hit on him. If that anode-bar ever caught the full blast of a nitrolite bullet it would be wrecked beyond possible repair. We'll just have to keep trimming the corners around him till we get a shot close enough to stun him. Let's go."

A swift fusillade of nitrolite against Dalo Yok's position drove the Martian to cover, where he lay long enough for Wheeler and Larsen to dart from their own shelter and begin stalking their quarry. Skilled veterans that they were in a score of similar battles upon foreign planets, they set about their task with a methodical efficiency, against which the *luhna*-crazed Martian had little chance.

Wheeler worked along the left wall of the cliffs, Larsen along the right. Dodging from cover to cover, coordinating their attack perfectly to help each other's progress, they swiftly flanked the Martinian and drove him from one rock heap to another, inexorably driving him near and nearer the barrier cliffs at the valley's rear. Dalo Yok's answering shots were wild, inaccurate efforts that did no damage other than occasionally to shower one of his attackers with flying sand and rock fragments.

As Dalo Yok retreated the available cover rapidly thinned, until the only rock-masses breaking the level white expanse of the valley floor were occasional isolated boulders scattered here and there like gargantuan jewels. The time inevitably came when Dalo Yok was momentarily caught in the open as he dashed from the shelter of one boulder to another.

It was the chance for which Wheeler and Larsen had been waiting. Their bullets exploded in the sand within a yard of the fleeing Martian. Dalo Yok was flung bodily from his feet by the terrific concussion. He sprawled in a limp heap on the sand, completely stunned.

Wheeler and Larsen started toward the unconscious figure. Wheeler was much the closer of the two. He had nearly reached the Martian while Larsen was still fifty yards away. Then, as Wheeler passed close beside a huge green boulder that rose from the sand near Dalo Yok, disaster struck with bewildering swiftness.

Before Larsen's startled eyes the great, green boulder for one flashing moment came to life! Its jade front gaped open, releasing blood-rtd tentacles that lashed out and enveloped Wheeler before he could move. The crimson tissues instantly snapped back inside the cavity with their prisoner, and the crystal front of the boulder again clicked shut like the closing jaws of a steel trap. The entire incident occurred with a lighting speed that stunned Larsen.

A moment of mad racing over the sand brought him to where the great block of opaque green crystal towered as stonily motionless as it had been before Wheeler was engulfed. Roughly oblong in shape and towering upward nearly eight feet, the thing looked somewhat like a great, jade coffin standing on end. Long ribbons of what seemed to be dried vegetation festooned its sides, adding to its appearance of having stood there lifeless and motionless for centuries.

Yet Larsen knew that within that stony shell there was hideous life—life that was probably even now smothering the hopelessly trapped body of Bart Wheeler. The line where the lips had closed was faintly visible in the front wall of the stone. Stepping between the dangling brown ribbons that trailed over the sand at the boulder's base, Larsen snatched the heavy little hand-axe from his belt and savagely attacked the closed lips.

For all the effect his blows had, he might as well have been assailing the metal shell of the *Falcon* itself. The green boulder did not even quiver. Larsen stepped back, baffled for the moment.

Realizing that seconds might mean the difference between life and death for Wheeler, Larsen drove his racing brain in an agony of effort to find a way to pierce the crystal-armored walls. He dared not use nitrolite. Any explosion violent enough to wreck that stony colossus was almost certain to be fatal to Wheeler as well.

Larsen stepped despairingly forward to make a last attempt at prying open the closed jaws. As he did so he trod upon one of the trailing brown ribbons. The green wall instantly split open for its full height, as if two doors were operated by a hidden spring. Larsen's instinctive leap backward saved him by inches from the tentacles of red flesh that lashed out from the boulder's interior.

The red tissues snapped back within the thing and again the stone jaws clicked shut, but not before Larsen had caught a brief ghastly glimpse of an inner cavity of pulsing red membranes, among which Wheeler's stocky body still struggled feebly.

Swift realization flashed through Larsen's racing brain. He knew now how to make the powerful jaws snap open. Those apparently innocent, brown ribbons were, in reality, cleverly disguised sense-organs for the thing. When an unwary victim trod upon one of the ribbons, the jaws automatically snapped open and the lashing red membranes swept the captive inside, to be digested at the thing's leisure.

Larsen's lips set in a grim straight line as he snatched a selithium tube from his belt. There was one morsel that the thing would not relish. He pressed the switch in the handle. The tube's six-inch selithium tip—used by explorers for both light and warmth—glowed in white-hot incandescence.

Larsen warily trod again upon one of the brown ribbons. The jaws snapped open in instant response. In the fleeting second they remained open Larsen flung the flaming tube between the curtains of membrane deep into the body cavity.

The jaws clicked shut again. For a brief second, as the thing remained stonily motionless, Larsen thought his ruse had failed. Then the crystal came to sudden and frenzied life. Its festooning ribbons writhed like tortured snakes, while the whole vast bulk shuddered and rocked crazily on its base.

For a moment the evidences of agony continued. Then abruptly the jaws gaped open and remained open while the tortured membrances of the inner cavity retched in a mighty effort to expel the object that was causing excruciating pain. Wheeler's body was ejected with a violence that hurled it ten feet away.

With Wheeler safely clear, Larsen sent a swift burst of nitrolite bullets into the gaping body cavity. When the explosions ceased, nothing remained of the thing but a shattered heap of green crystal fragments and torn scarlet membranes of quivering flesh.

Wheeler, his clothes smeared with the body juices of the creature's maw, was climbing dazedly to his feet as Larsen turned toward him.

"Thanks, Eric," he said weakly, scowling in disgust as he wiped the slime from his face. "About one more minute in that hellish thing and I'd have gone raving crazy. I'm all right now—just messed up a little is all. You'd better take care of that Martian, though. He seems to be coming to."

Heeding Wheeler's warning, Larsen promptly stepped over to where Dalo Yok was groggily rising to his feet. The Martian made no effort to resist as Larsen stripped his belt-gear from him, merely staring at Larsen with lusterless eyes that told of a brain that was hopelessly dazed, now that his first murderous frenzy had passed. Larsen drew a breath of deep relief as he found the anode-bar cached in the Martian's belt-pouch.

"Find it?" Wheeler queried. "Good. Now let's beat it back to the *Falcon*. I've had about all I want of Yokku for all time!"

"I've no craving to linger here any longer," Larsen assented. "Now that we've recovered the anode-bar we might as well—"

He broke off abruptly as a startling outcry came from beyond the cliffs. There was an indescribable metallic quality in that grating roar, as of great sheets of rusty iron rasping together. The sound lasted for nearly ten seconds, then died away into silence.

Larsen's eyes met Wheeler's, the same thought in both their minds. That metallic roar came from the spot where they had left the *Falcon!*

Without a word, they started grimly for the pass, dragging the still dazed Martian along between them. When they at last emerged from the other side of the narrow gap, they stopped short in horrified consternation at the sight which confronted them.

The *Falcon,* resting there upon the sand two hundred yards away, was enmeshed in the coils of two great serpent forms, whose colossal size seemed to dwarf even the graceful cylindroid of the space-yacht. Each of those great serpentine figures was a full sixty feet in length, with bodies nearly six feet in diameter. The lustrous, metallic, bronze-colored scales, that armored their undulating coils, glittered with a savage and sinister beauty under the tri-colored rays of the sun-arch overhead.

They possessed the same peculiar flame-creating equipment that had been noted in the small lizard-like quadrupeds, the three short rigid rod-antennae set in the foreheads of their great ugly heads. One of the giant worms was already focussing the pale rays of green, blue, and yellow upon one of the *Falcon's* closed ports. Where the rays met a swirling cloud of greasy, black vapor began to form.

Staring at the metallic colossi with blanched faces, Wheeler and Larsen realized that they were at last facing the monstrous things of which Ran Yok had babbled in dying delirium. Here were the "flame-worms of Yokku" in all their appalling power and terrible beauty!

The sight of the great serpents seemed to strike a sudden responsive spark in Dalo Yok's drug-colored brain. Before they realized what he was doing he wrenched himself free from their grip and started racing headlong across the plain toward the *Falcon,* shouting an incoherent gibberish of guttural Martian as he ran.

Larsen drew his nitrolite pistol. "Come on, Bart," he said grimly. "We've no chance to head that flying lunatic off, but we've got to fight our way into the *Falcon* some way before those things fuse the ports with their flame-antennae and bar us completely out."

They started warily toward the ship. Dalo Yak had already covered half the distance. The great metallic worms had seen the oncoming Martian and were deserting the *Falcon* for the moment to investigate.

The progress of their colossal bodies was a miracle of effortless speed, as they writhed forward toward Dalo Yok. Gray vegetation and everything else in their path was crushed ruthlessly beneath them. Droves of the small lizard-quadrupeds fled in blind panic before the monsters' advance.

Dalo York showed no fear even when the on-coming titans were squarely upon him. He stopped and, with fists lifted in pathetically futile defiance, awaited their coming. One of the great worms trained its triple antennae upon the Martian.

Wheeler and Larsen swung their pistols into line to make a last desperate effort to save Dalo Yok, but a new drove of the panic-stricken lizard-things came hurtling against their legs just as they were pressing the triggers. Their shots flew wide. They staggered for a moment, then recovered their balance as the lizards flashed on past them in their mad flight, but the brief delay had meant death for the Martian.

Where his body had stood, before those lethal rays had focussed upon it, there was now a pillar of swirling oily black vapor, shot through with angry flashes of leaping red flame. Then the rays vanished, and the vapor almost instantly coalesced into a shapeless lump of molten black. The giant worm sent a long ribbon-like yellow tongue flickering out to enclose the black mass with its three-pronged tip and whisk it back into the gaping mouth.

In a revulsion of horror at Dalo Yok's hideous death, Wheeler and Larsen flung nitrolite against the monster's armored bodies until the explosions merged into a single rippling crash. The rod-antennae retracted into the massive skulls until they were little more than pointed bulges, and the deep-set eyes were filmed over with protective plates of transparent crystal, but the giant worm-figures held their ground with stony immobility, even in the face of that crashing bombardment. When Larsent and Wheeler at last ceased their fire they saw to their despair that the bursting nitrolite had had no apparent effect whatever upon the monsters. There was not even a break in the lustrous bronze of their scales.

The instant the nitrolite barrage ceased the worms began gliding warily toward the men. Larsen and Wheeler started slowly giving ground, backing toward the pass. Then the silent pistols seemed to reassure the worms. They began closing in with increasing speed.

Knowing that any attempt at flight would be made futile by the incredible speed of the worms, the men again stood their ground and once more stopped their pursuers for the moment with a crashing fire of nitrolite. This time they concentrated their aim upon the hideous heads, searching every inch of the massive skulls to find a vulnerable spot. They failed utterly. As far as nitrolite was concerned, the giant worms were absolutely invulnerable.

Again they ceased their fire, and again they had to retreat as the worms once more resumed their resistless advance. This time, as their silent pistols threatened a new outburst of speed from the pursuing worms, Wheeler and Larsen tried different tactics.

Instead of standing their ground and bringing the worms to a complete halt with a concentrated burst of nitrolite, they contented themselves with a slow steady fire against the great heads in an effort to merely slow their pursuers down enough to keep them at a safe distance. Their plan worked for the moment.

The bursting nitrolite, though powerless to wreak any real injury upon the metallic titans, seemed to both annoy and puzzle them. They slowed their advance down to a steady, cautious progress that kept them some fifty feet behind their retreating quarry. There was a leisurely, almost contemptuous, quality in that slow, inexorable advance, as though, in the knowledge of their own resistless power, the monsters were content to bide their time for the moment, until the annoying explosive stings of their puny victims should be exhausted.

Larsen and Wheeler fought doggedly on to hold the worms at bay as long as possible, but they knew that the final result was inevitable. Their ammunition could not last forever. The pass through the cliffs was nearly at their backs now. To go on through it meant being trapped in the cliff-walled valley beyond. Yet escape to either side of the pass entrance was nearly as futile. They were bound to be overwhelmed in the end, anyway.

Better to make a last fighting stand and get it over with. The pass itself was probably as good a place as any. They were at least guarded from any flank attack there. Larsen started to suggest the idea to Wheeler, then abruptly stopped, as thought of the pass brought a sudden inspiration flashing through his brain. There *was* a possible weapon that might vanquish even the colossal power of the great worms.

"Load your pistol to full capacity, Bart," Larsen snapped tensely. "Then give me all your reserve ammunition. I'm dropping back into the pass to lay a trap for those brutes. Keep them at bay as long as your ammunition lasts. Then break and run for it back through the pass. I'll be waiting to cover your retreat."

The worms briefly threatened to surge forward as Larsen darted back into the pass, but Wheeler quickly increased his fire to a smashing fusillade that again brought them nearly to a halt. Larsen raced on back to where the wall bulged out in that titanic overhang. Beginning about twenty feet above the floor of the pass, the overhanging area extended for nearly seventy feet along the wall.

Larsen took the first likely spot he found, a shallow cavity in the wall just under the center of the overhang. Dumping all the reserve nitrolite from its safety containers, he made a compact pile of the deadly pellets in the niche. There was enough nitrolite in that small pile of blue-black capsules to annihilate a city. It required only one smashing blow to set the whole thing off.

He hastily packed rock fragments around the explosive to divert as much of its force as possible against the cliff face, leaving a yard-wide hole through which to send the bullet that was to explode the pile.

Just as Larsen finished his hurried job, Wheeler's ammunition was exhausted. Larsen heard Wheeler's fire abruptly cease as Wheeler came racing toward the pass. Larsen dashed twenty yards beyond the mine spot to get as far as possible from the terrific blast of the nitrolite. Then he dropped to one knee to steady his aim as he trained his pistol upon the niche.

Wheeler, his face contorted with effort as he forced every last ounce of speed from his stocky body, was barely beyond reach of the racing worms behind him as he entered the pass. The pursuing titans abruptly slowed down as they saw Larsen waiting ahead of them with leveled pistol. For a moment they came to a full halt, watching Larsen's motionless figure with shielded eyes, apparently expecting the tormenting hail of nitrolite to start against their faces again.

Wheeler raced on past the overhanging area to safety, and flung himself flat on the ground beyond Larsen in response to Larsen's tersely worded command. The worms' hesitancy vanished as Larsen's pistol remained silent. They started cautiously forward again, their great glittering bodies seeming to nearly fill the pass as they advanced side by side.

Larsen's eyes glowed in satisfaction. The situation was ideal for his plan. With the worms advancing abreast as they now were, he had an excellent chance of getting both of them.

He held his fire for a long tense moment. Then, when both the great ugly heads were squarely under the overhanging cliff wall, he sent a single bullet hurtling accurately into the niche where the nitrolite lay.

There came the sharp report of his bullet exploding, almost instantly blotted out in a terrific blast of fire and crashing chaos that seemed to rock the very universe. Larsen's senses reeled for a brief second in the cataclysmic fury of that blast. Then something crashed against his forehead, bringing swift and complete oblivion.

He struggled back to consciousness to find Wheeler working over him. "A rock fragment bounced off your skull," Wheeler explained briefly. "Why didn't you get farther away before setting off that blast, you idiot?"

"I got as far away as I could and still be able to get a shot inside the niche," Larsen answered. "Did it work?"

"Did it work?" Wheeler retorted. "Boy, you brought a whole mountain down on those brutes! Get up and take a look."

Larsen staggered dizzily to his feet and saw that Wheeler's statement had been no exaggeration. For a distance of nearly thirty yards the pass was chocked with a chaotic mass of great jagged blocks of blue crystalline rock. Crushed and broken beneath those countless tons of rock and crystal were the bodies of the two giant worms. The only remaining traces of their great metallic figures were a few torn shreds of bronze-scaled flesh among the rock rubble at the edge of the mass.

"We'd better climb on out of this place before the noise of that battle attracts some of the brutes' little playmates," Wheeler suggested.

Climbing over the ragged pile of fallen rocks was a precarious task, made doubly so by several remaining masses high up on the shattered cliff wall that threatened to fall at any minute, but they made it without mishap. Leaving the pass they quickly crossed the plain to the *Falcon*. They opened the entrance port, then stopped and turned for a last look back at the pass.

As they looked they saw one of the precariously balanced masses high on the shattered cliff tremble for a moment, then go crashing down. The great block struck against the crystalline boulders in the pass with a clear ringing impact that the acoustics of the narrow gap magnified until it was oddly like the single chiming note of a giant crystal bell struck in requiem over the shattered bodies of the mighty flame-worms of Yokku.

THE END

Stellarite

(*Continued from page* 1134)

a second before opening the portals of the airlock, and the Baron held out his hands, one hand to Campbell and one to me.

"My friends, we have been comrades through untold dangers; there is no need for us to pledge friendship, for friends we are and friends we'll always be. We will take another trip to the stars at some not distant time, *nicht wahr?*"

"To the stars, through bolts and bars!" I quoted, as we grasped hands instantly.

THE END

Book Reviews

"Druso oder Die Gestohlene Menschenwelt," by Friedrich Frecksa. Published by Herman Reckendorf G. M. B. H., Berlin S. W. 68. 317 pages. Mark 3.—about 75c.

THE title in English would mean approximately: Druso, the Scourge of Humanity or Humanity Kidnapped. The book is a description of the events which are supposed to happen when a wandering planet used as a spaceship by its superscientific insect-like creatures captures earth by a ruse, and ruthlessly subjugates humanity. The book starts in the year 2000, painting a glorious picture of the heights of science and culture reached by humanity. It describes in interesting detail, how the Asiatic States were forcefully compelled to abandon their plan of world conquest, and the ushering in of a general world-peace.

Suspended animation had been perfected and it had become a custom to select about 100 suitable persons representing all that was best in the arts and sciences and put them to sleep for 99 years. When they were awakened they were supposed to check up on everything to see that nothing had been overlooked in the development of the human race. To be selected as one of the sleepers was considered the highest possible honor. Our hero "Alf" and his wife "Judith" enter the long sleep, and Judith was the first woman with child to do so.

A few years after starting their long sleep humanity has been tricked into allowing the wandering planet "Druso" to approach, and soon the "Drusonians" become masters of the earth. Everywhere they set up regional commanders and by use of hypnotism and mesmerism and by sheer power of their superior intelligence they made slaves out of unresisting humanity. Wars were encouraged and bye-and-bye humanity sank to as low a level as the cave men. The Drusonians, who were ant-like insects but far ahead of Earthmen in science, ordered the destruction of all machines, factories, libraries, seats of learning, etc., instilling in humanity a hatred of all metals, except iron for warfare and gold for its demoniacal influence.

A small band of scientists had fled to the North Pole, where they were trying to liberate the Earth. Drawing their conclusion from old legendary records a few of them set out to locate the temple of sleep and finally in the year 2300 the temple was located and the work of resurrection begun.

Being unable to follow the explicit directions, only four were revived, Judith, Alf, Flins and Hurst, the rest perished.

These four awakened ones were looked upon as gods, because the scientists hoped for a revival and re-discovery of lost sciences.

They were not disappointed; soon a large selective Televisor, a "far seer" and a "far hearer" were constructed, which operated without a sending station, a subterranean power station was relocated and the atomic engines were repaired. Judith's child conceived 300 years ago was born, and called "Uraura," and mother and child were revered as Gods.

Plans were made to liberate the Earth from the yoke of the Drusones, and they were hastened by the abduction of Judith and Uraura.

The northern scientists, who call themselves Atlantideans in memory of Atlantis, having helpers and supporters everywhere, smuggle the other three awakened ones aboard a Druso bound spaceship.

Arriving there they meet an Earthman, Cassaniak, who is waging a successful guerilla war on the insects, and with his help, Judith and Uraura are liberated and the whole party reaches Earth safely.

While on Druso, they saw through their "Far Seer" the use to which the constant stream of men and women brought to Druso were put. They were being slaughtered like cattle and worked over into food products for the Drusonian insects.

Barley landed on earth, Alf gives the signal to start a general destruction of all Drusonian stations, and by releasing enormous masses of energy through their atomic engines, they see that Druso is forced to leave its position in the heavens.

An attempt of Druso to throw the moon upon the Earth is also frustrated, and the Earth is finally liberated.

The work of re-construction begins. A few regional Drusonian masters are captured alive and by compelling them to use mass-hypnotism, humanity is put back on the upward path of civilization.

I have seldom read a book which kept my interest alive to such an extent as "Druso." It is magnificent in its conception, marvelously well done, thoroughly and always plausible. Its action moves along at an agreeably swift pace, and its logical development leaves the reader breathless with pleasure. It is worth being translated into English.

C. A. BRANDT.

This Mechanical World

This Mechanical World. By Morton Mott-Smith, Ph.D. D. Appleton & Co. $2.

THIS is an excellent book for the boy or the adult who desires an acquaintance with the elements of mechanics. Despite the unavoidable difficulties in presenting his subject-matter, the author writes in a simple and entertaining style, and is at all times easy to follow. It is true that, in a volume of little more than two hundred pages, he can attempt only the slenderest introduction to the tremendous universe of physics; but he has accomplished all that he has undertaken, and has not only made the fundamentals of his subject plain but will probably inspire most of his readers with a desire for further investigation and study.

In his opening chapter, Dr. Mott-Smith reminds us of the supremely important part that mechanical ideas have assumed in modern life; and he points out that our whole civilization could be paralyzed if not destroyed were one tenth of one per cent of our citizens suddenly to be killed—provided that that one tenth of one per cent represented the mechanical experts. The rest of us, being ignorant of physical laws, would be helpless to save ourselves; hence it is the author's view that, while no such calamity is likely to occur, all of us should have some understanding of the physical workings of the world about us. In the following chapters, accordingly, Dr. Mott-Smith tries to provide the beginnings of such an understanding. He opens by explaining the meaning of density in the scientific sense by relating the incident of Archimedes and the alloyed golden crown; he discusses the question of the vacuum and of the manipulation of force by means of the lever; he tells us of Galileo and the establishment of the modern science of dynamics; he has chapters on the law of inertia, on the effects of acceleration, on the independence of motion, on the conservation of energy, on Newton and the new cosmos, on the law of gravitation, on mass and weight, on kinetic and potential energy, and on other subjects of fundamental importance. And topics he treats as interestingly and as thoroughly as his limited space permits.

S. A. C.

"The Magical Powers in Man" or *"Wild Talent,"* by Fort. Published by Clande Kendall, 70 Fifth Avenue, New York. 342 pages. $3.00.

THIS volume is a sort of unillustrated "Believe it or Not," from newspaper clippings all over the world. Anyone, who has any acquaintance at all with newspaper work, will know that nearly all items pertaining to things scientific or near-scientific are usually so garbled, distorted and inaccurate that they are worthless to all intents and purposes. Yet to Mr. Fort any and all newspaper reports are the ultimate in veracity, and he apparently places full credence in even the most obscure sheet.

True enough, many curious things happen on this planet of ours, murders, fires, disappearances occur with deplorable frequency and Mr. Fort labors with unflagging zeal to establish all kinds of correlations.

It seems that the purpose of this present volume is the establishing of proof that the world is still peopled with sorcerers, wizards and magic and that there are a few people gifted with what Mr. Fort calls "Wild Talent" which enables them to start fires at will, make other people disappear, make themselves invulnerable to pointed and edged weapons, bullets, etc. etc.

As in all his previous books, he flatly contradicts any science; to him the earth is flat as a pancake and he really ought to team up with Mr. Voliva the sage of Zion City, if only for mutual praise and consolation purposes.

His style of reasoning is, to express it mildly, somewhat peculiar: *exempli gratia* as they say see page 201 "I now have a theory that, of themselves, men never did evolve from lower animals: but that in early and plastic times, a human being from somewhere else appeared upon this earth, and that many kinds of animals took him for a model, and rudely and grotesquely imitated his appearance, so that, to-day though the gorillas of the Congo and of Chicago, are only caricatures, some of the rest of us are somewhat passable imitations of human beings." On page 288, he reasons thusly: "Or a moth sat on a skull—and so it rested, with no more concern that it would feel upon a stone. That a human being came suddenly upon the skull, and that from him a gush of mystic fright marked the moth—The Death's Head Moth." This is really a wow!

C. A. B.

DISCUSSIONS

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

A LETTER OF CRITICISM AND APPRECIATION FROM IRELAND

Editor, AMAZING STORIES:

Having broken the Discussional Ice several times, I am again launching into the columns of nagging strife and flattery, though merely as a completely neutral observer. I wonder am I wrong, but I think "Discussions" is becoming a species of battle-ground, in which even the celebrated Dr. Smith scorns not to wage verbose combat. However, be it far from me to make irritable and touchy protests, for certainly these literary tussles are most entertaining. What do you think?

At one time, I had determined to issue a list of stories which I had found most entertaining in their respective volumes of "A. S." Reflecting upon the thought, I began to wonder who the heck cared about what I liked (hint). Anyway, the lists would be too long and effusive. However, to be in the fashion, I might as well record my immense appreciation of the Skylark Stories. Boy, those were the stuff to give the troops! (Faintly: "Any chance of reprints?"). I can almost see The Editor shouting gleefully: "No-o-o, NO!"

Oh, by the way, I said something acrid about love-interest in our stories, and I'm glad to say that I was quite unaffected by the remark which you made in the footnote to my letter in which it appeared, viz: that Ireland was the last place you would expect such an opinion to come from. I reiterate what I said, and want to add more. The manner in which the heroine carries on is excessively nauseating. It all goes to prove that love-interest is altogether incongruous in Science-Fiction. More —the idiotic female proceeds to fall into grave danger with tiresome regularity, no matter what the plot is. It is then evident to the lowest form of intellect exactly what is going to happen. The hero, with tensed jaw, goes to the aid of the fair girl, nearly, but not quite, gets killed, and gets away with everything, including the heroine. Yah. One day I'll write a story, and there will be a different climax for the hero and his girl.

Anyway, before I forget it, I want to tell you that you have a great magazine, and if it does fall down once in a blue moon, who cares? If a fellow gets a bad egg one morning out of 365, does that mean he should give up eating eggs? (Though, really, Ed., I did once get a very bad "meggazine" which I repudiated as a forgery of "A. S.") By the way, the covers are becoming very excellent; keep it up. There are two rivals of yours however, who still beat you in the cover line. They happen to possess better artists, I imagine. Your inner illustrations are not so hot, and I think they are very indistinct.

I still consider AMAZING STORIES the highbrow of the three important Science-Fiction magazines on the market, and will always derive considerable gratification from reading it.

Best wishes.

Fitz-Gerald P. Grattan,
11, Frankfield Terrace,
Summerhill South,
Cork, Irish Free State.

(Our comment on this letter may be put in a few words—that it comes from Cork and has a true Irish touch to it. We were greatly amused and entertained by the Dr. Smith and Miss Robb controversy. It was amusing to see how the Irish lady, in perfect good humor and politeness, held her own against Dr. Smith, and this gentleman from Ireland simply expresses his opinions definitely, but after all his criticism ends up with a very nice little compliment. We are always glad to get letters for the Discussions from distant lands. But England is getting about a day closer every few years by steamer and when the great transatlantic airplanes start going, it will be very near us.—EDITOR.)

MORE ABOUT MISS ROBB AND DR. SMITH, SLANG AND ITS EFFECT UPON LANGUAGES

Editor, AMAZING STORIES:

Allow me to present a new plot to authors. The villain persuades his victim to insert a letter in the Discussions Column of A.S. asking for back numbers. From this point, the victim's slender resources are gradually depleted by the cost of acknowledging all the applications received. Finally a point is reached, when, tottering upon the verge of insanity, he decides to ignore all future inquiries!

Henceforth the exquisite mental torture, occasioned by abusive letters on the score of discourtesy, commences.

I must say my letter of over a year ago was highly successful, as I obtained all the copies I required except the first five issues. Those who, in the past, have had no reply from me, will now, I hope, forgive me.

During the temporary lull in hostilities between Miss Robb and "Doc" Smith, perhaps a diffident Briton, tea-cup in hand (as per publications abroad) might be allowed to venture forth upon the battlefield.

Miss Robb's ragged banner attracts me, if only for the reason that her army so far consists of one, to wit an heretic American. To some extent her arguments consist of calculated exaggerations with which I cannot associate myself. "Apostles of expectoration" is going a bit too far. I do think, however, that there is an underlying basis of truth in some of her conclusions, and for this reason support her.

I do not propose to join issue in the wordy battle on the matter, as I consider a great deal too much valuable space has already been wasted on it.

I would only draw attention to one aspect of slang so far not touched upon.

I think it is agreed that the language factor is one responsible for much of the hostility and mutual suspicion that exists between the nations. If we all spoke the same tongue, the path to international peace and world progress in the future would be considerably smoothed. Particularly is this so having regard to the promise of the days to come in respect of the annihilation of distance.

The day is not far distant when a week-end on the other side of the globe will be a commonplace.

It therefore appears to me a regrettable fact that if slang maintains the same ratio of progress, a few centuries will see an American language as different from English as English is from German. This, I submit, would be a major calamity to the world.

Before beating a strategic retreat to the teacups, which authors overseas for some unknown reason so frequently inflict upon us, may I anticipate the suggestion that the danger be averted by the English learning slang, with a well and truly aimed shower of teapots.

Yours wearily,
D. G. Lyle,
21 Marlborough Rd.,
Bradford, Yorkshire,
England.

P.S. With all due respect to Mr. Campbell, who after all is only a young man, any comparison between his works and Dr. Smith's does not warrant one moment's consideration.

P.P.S. Thanks for the monstrosities Mr. Editor.

(We are sorry to say that we have endless difficulty in getting the back numbers we need and desire, so perhaps your plot with the Editors of one of the victims might go very well. In the Robb-Smith discussion as far as "Apostles of Expectoration" goes, we would suggest that you read Charles Dickens' "American Notes" and his novel "Martin Chuzzlewit." He becomes quite eloquent on that subject of spitting in America. The writer would be ashamed to tell you how many years he has lived in America and during his lifetime the detestable habit of spitting has greatly decreased. The difference in language may be taken as an indication of a difference of race, so perhaps it would be well to say that the difficulty between nations is due to race idiosyncrasies rather than to dictionaries and grammars. There is absolutely no danger of English and American people forming two languages.—EDITOR.)

THE NEW COVER—STORIES IN THE JANUARY ISSUE. A LINE OF ENCOURAGEMENT

Editor, AMAZING STORIES:

I have been reading A. S. for about a year but this is the first time I have written to you. First of all I want to compliment you on your new type of cover. I think it is much better than the old kind.

The stories in the January issue are not quite as good as the ones in the December issue but they are good. I like them in the following order:

1—The Pool of Death by Bob Olsen.
2—The Last Earl by Franklin Ryan.
3—The Treasure of the Golden God by A. H. Verrill.
4—Omega the Man by Lowell H. Morrow.
5—Radicalite by Richard R. Murray.
6—Delilah by Margaretta W. Rea. (What is science fiction about this story. Ans., Nothing. It is worse than The Doubt in the Feb., 1932, issue.)

All the same I like your magazine and expect to read it for a long time.

Hoping you keep up the good work, I am,

Raymond Ingersoll,
380 Clinton Ave.,
Brooklyn, N. Y.

(It is amusing to see how you classify our stories and it is gratifying to see that you put at the head of the list the stories that we thought were particularly good. The curious feature of the thing is that objections which we feel are uncalled for, have been made to these very stories which you admire. "Delilah" has science in it, it is a description of of somnambulism and of what may be done by a victim to this very strange phenomenon. We are going to keep up the good work.—EDITOR.)

MORE ABOUT THE NEW COVER. COMMENTS OF STORIES. ALL THAT CAN BE SAID IS THAT TASTES DIFFER. THE LORENZ-FITZGERALD CONTRACTION

Editor, AMAZING STORIES:

I regret that I can't start my letter with the proud lines, "I have read your (our) magazine since April, 1926," but I suppose the fact that I have read all AMAZING STORIES, Monthlies, Quarterlies, and Annuals since Oct., 1927, will have to be sufficient warrant for this missive.

It is the habit of most early readers to claim the superiority of the magazine in "the good old days." In my humble opinion, however, the last few issues of 1931 and the first few issues of 1932 represented A. S. at its height. Its nadir was in the spring and summer of 1929. At present I feel that the magazine, though still on a high standard, is traveling on a level, with the usual slight variations, just below the aforementioned heights.

John Campbell, Jr., is by far the author which I hold in highest esteem. The sheer magnitude of his imaginative creations leaves one gasping for breath. His lengthy explanations in support of his theories, far from being text-bookish, are highly interesting and are colored by the personalities of Arcot, Morey, and Wade. These explanations show at least that the author's ideas are the result of thought and calculation and not merely the spontaneous fancies so easy to conjure up when unsupported by any theory or an association with some present-day process of thought.

One, or several, authors have used for their theme the fact that when a space ship passed the speed of light their length would be a minus quantity (or rather an imaginary length, and that this condition would cause the ship to pass into another dimension. Now, when an object is traveling at the above rate, it would have an infinite inertia and so it would take an infinite force to accelerate it any further. As a matter of fact, no power conceivable could accelerate it the last few feet per second per second.

I don't object to the use of slang in stories, but Dr. E. E. Smith was certainly not judicious in several of its applications, for instance, when Seaton made his replies to the dignified Marmondalian savant. Next to Mr. Campbell, however, Dr. Smith is my favorite author. As a writer, in regard to style, etc., etc., he is superior to the former, but he is surpassed in the science and imagination.

It seems that A. Merritt is immensely popular among A. S. readers. Personally, I feel that at best his stories are merely grown up fairy tales.

Congratulations on the excellence of your new style cover. While formerly its undue lavishness created among on-lookers an association with weird tales and ghost stories instead of its actual scientific contents, I now find that the present cover which is so suggestive of science belied itself when among the present contents there appeared such a grossly fantastic tale as the "Last Earl." It is a cruel thing to accuse any author of plagarism, but it seems to me that every vampire story I have come in contact with has followed the exact plan of the above-mentioned tale. It contained nothing which could be called science. I certainly do not believe that the mere mention that sun rays MIGHT affect the brain cells and a shady reference to some machine (the details of which were avoided by the old plan of assuming a scientific ignorance among the readers) is sufficient reason for using up many pages of a supposedly scientific magazine. The only other story in the January issue which I have so far read was "Omega, the Last Man." This was indeed an excellent and entertaining tale.

There are hundreds of ideas which I would like to express but I'm afraid that I have already exceeded a conservative space limit. I will conclude, that despite my few brickbats A. S. has afforded me many entertaining hours of reading and has stimulated many mental controversies. It is outstanding in its particular field.

Cyril Endfield,
537 Monroe Ave.,
Scranton, Pa.

(Your letter tells its own story. Dr. Smith has won great praise with our readers, with Mr. Campbell a close second. Many of our readers you will find differ with you in your estimation of "Omega," and of "The Last Earl." This is an example of the woes of an Editor. He wants to please everybody but this is impossible. We thank you for your appreciation of our efforts.—EDITOR.)

AN ADVOCATE OF THE OLD TYPE OF COVER

Editor, AMAZING STORIES:

I received quite a shock when I saw the cover of the January issue of AMAZING STORIES. I knew that there would be a change, but I did not expect such a drastic one. Why did you take the familiar block letter title off and why do you use but one color? We are not all the self-conscious type who are afraid to read in public, magazines with bright colored covers illustrating fantastic looking scenes. AMAZING STORIES is a fiction magazine and should not use the type of cover on the January issue.

I hope that the majority of your readers do not favor the new cover, and ask for the return of the all-color cover in which a scene in one of the stories is illustrated. Also for the return of the old title.

I would like to see the old AMAZING STORIES return. The old AMAZING STORIES we used to haunt the newsstands for.

Its covers were colorful and well done. Its illustrations were also well done and not the poorly drawn kind now used in most cases. Its stories were interesting throughout. Plenty of action and science and not too much or too little of either. I refer to the years up to the middle of 1929. Since then Wesso was discovered but he was used in comparatively few issues on the cover and little more inside the magazine. Paul and Wesso are the only artists who have done good science fiction illustrating. Please bring them back.

"The Last Earl," although a good story, does not belong in AMAZING STORIES. It is not scientifiction. I was surprised to find it in the magazine.

"Delilah" is another unscientific story. It was quite dull reading.

The stories for the next issue look good.

Jack Darrow,
4224 N. Sawyer Ave.,
Chicago, Ill.

(Our correspondent is an exception to most of those who have referred to the new cover, as he prefers the old type. "Delilah" is a study of somnambulism and it certainly, in the colloquial dialect, kept you guessing to the end. —EDITOR.)

THE NEW COVER

Editor, AMAZING STORIES:

Congratulations upon the first progressive step Amazing has made since 1926! It merits praise from every scientifiction fan—may I be the first to offer it.

Linus Hogenmiller,
502 N. Washington,
Farmington, Missouri.

(We are putting together the letters in which reference is made, pro and con, regarding our new cover. They will illustrate one thing— that there is no accounting for tastes—most would like to have the new and one prefers the old covers.—EDITOR.)

COMMENTS ON STORIES IN THE JANUARY AMAZING STORIES

Editor, AMAZING STORIES:

I have been a constant reader of your magazine since the first issue. I read the first issue in the St. Louis Public Library and have purchased a copy of every issue since then.

I was very much surprised and disappointed at the contents of your January number. You have changed the cover scheme, which is all right, for the cover is attractive and striking, but in changing the cover you have apparently completely changed the character of the magazine itself.

The first story, "The Treasure of the Golden God," cannot by any stretch of the imagination be called Scientific Fiction, it is the type of romantic adventure that one would look for in the *Argosy*. "The Pool of Death" is a very poor imitation as far as the science angle is concerned of similar stories that have already been printed by you. The mystery part is different from the style of stories you usually print, but the story belongs to a detective magazine rather than to AMAZING STORIES. The next story, "The Last Earl," is the type of story one would look for in another magazine and certainly does not belong in a magazine of this particular type.

"Delilah" is also a weird stories type and is not suitable for your magazine. "Omega, the Man," is perhaps the most disappointing of all. First, it is terrifically depressing, which is a bad feature in these particular times, when we need stories of progress and achievement, rather than stories of complete defeatism. However, apart from this unpleasant feature, there are so many inconsistencies in it, that I wonder how it ever got by. The part of the story, where Omega and Thelma settle down beside the last pool of water, which is apparently the final concentration of one of the oceans, formed in one of the ocean's deepest valleys. It tells of a slight vegetation around the shores of this lake, an utter impossibility, for this lake would be a concentrated brine, similar to the Great Salt Lake in Utah, with an even greater salt concentration than that lake has, and it could not sustain any kind of life in or around it.

The story "Radicalite" is built around an important error of fact, which spoils it for anyone who knows the real facts. This error is, the supposed use of Radicalite as a substitute for platinum as a catalyst in the manufacture of sulphuric acid, and that anyone finding a cheap substitute for the platinum would make untold amounts of money. As a matter of fact, such a substitute has been found, vanadium now being used instead of platinum, and I don't think anyone is making "untold amounts of money" from it.

Walter X. Osborn,
Gila Bend,
Arizona.

(The word scientific has a much broader signification than many of our readers give it. Anything that is known definitely, may be called scientific. The term is not restricted to physics and chemistry by any means. In the very story you speak of—"The Treasure of the Golden God," by A. Hyatt Verrill, we have anthropology, which is a science, which has appeared in many of Mr. Verrill's stories, who is certainly a distinguished anthropologist. He absolutely knows his subject and it is a privilege to get such stories from authoritative sources. "The Pool of Death" is highly original and not an imitation. "Delilah," carrying a mystery based on somnambulism down to the last few sentences of the story, was eminently fitted for our pages. There is one comfort, however, you do like our new cover and we are gratified at your expression af appreciation thereon.—EDITOR.)

THE NEW COVER. "THE LAST EARL" CRITICIZED UNFAVORABLY

Editor, AMAZING STORIES:

When I bought my latest copy of AMAZING STORIES, I was so completely flabbergasted (to use a mild expression) that I thought the conservative publishers of the magazine had suddenly caught the new art craze.

According to custom, I suppose I should be expected to go into tantrums and irrelevant ravings, denouncing the outrageous action of the publishers in giving us such terrible trash. But, contrary to custom, I may honestly say that the new makeup of the magazine is entirely satisfactory.

The art cover of the January issue, done by A. Sigmund will probably be one of the things *that will increase our mag's circulation.* To me, and I am one who appreciates the new "arty" cover illustrations, it is certainly a wow!

The inside of the magazine has been wonderfully improved, although some of the stories are not exactly up to standard, and when I say standard, I am referring to that set by the type of stories written by Coblentz, Keller, Vincent and Verrill. But—where there are roses, there are brickbats, although the kind I am about to hurl into the editorial masticating organ is one of extremely soft composition.

I refer to one of several stories published in your latest issue; namely, "The Last Earl."

No doubt you have heard of the old saying: "There's a time and place for everything"— well, there's certainly a place for stories such as this type. And it's not in a magazine catering to a materialistically minded public, like AMAZING STORIES.

Can you imagine one of your old reliables settling himself into his favorite chair prepared to digest the latest news about the I. F. P. or the exploits of Captain Brink and coming upon a story of a type commonly known as weird fiction?

Can you further imagine this simple, trusting soul wading into the mass of irrelevant detail about "Vampires" and "were-wolves" and eery Roumanian castles, with ghosts groaning on the floor every half inch or so?

Can you imagine the end, when your former reader, enraged and maddened by what he had read retreats to the county bug house there to end his days reading something nice and prosaic like the "Ten Nights in a Cairo Den" and "How to Die Early If At All"?

No, you simply can't, for the memory of such a scene would drive any STF respecting editor along to the bug house with the reader. And with Ye Ed. out of the way, where would our mag be at?

With best wishes for the Doctor, Miss Olive Robb and the rest of the scientific fraternity, I close,

John B. Michel,
1094 New York Ave.,
Brooklyn, N. Y.

P.S. Kindly excuse me for forgetting to include the magazine in the last two lines.

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(We have little comment to make on your letter except to say that we are gratified to publish an appreciation of the new cover. You will find one of Coblentz's stories, really his best, in the Quarterly; you will find a story by Verrill in the January and February issues. We have several stories on our desk by Vincent, one of which we hope to give in the April number, and we have just received within a few days a story by Dr. Keller. We specify these four authors to carry out the exact expression of opinion in your letter, so you see that you are really being taken pretty good care of. We never knew that we catered to a materialisticly minded public. We shall let your letter speak for itself and we can only emphasize the fact that we do not agree with you and that we are certain that there are thousands of readers who differ from you in their opinions.—EDITOR.)

LACK OF KNOWLEDGE. THE TEMPERATURE OF SPACE

Editor, AMAZING STORIES:

I am surprised at the lack of knowledge exhibited in your reply to Mr. L. M. Swift in the November issue of your magazine.

As an argument against his theory that space may be warm you cite the example of a pilot in a plane who encounters great cold at high altitudes, and there you stop. May I refer you to page 693 of the November issue of *Popular Mechanics* where you will find summed up man's knowledge of temperatures at high altitudes. This article shows that definite measurements of temperature have been made by instruments carrying balloons to a height of about 22 miles. Results: The lowest temperature reached was about —60° and that was in the stratosphere; i.e., less than 19 miles high. From the top of the stratosphere to the maximum altitude reached of 22 miles the temperature rose and it is estimated that above 25 miles the temperature of space is approximately equal to that on earth.

The estimate you can deny; the recorded temperatures you can not.

The proof of the pudding is in the eating, you know.

J. F. Galbraith,
235 Lincoln Ave.,
Dolton, Illinois.

(If you will divide 186,000 miles by 22, and use that as the denominator of a fraction with unity for its numerator, or if you prefer it, divide 22 by 186,000, you will have a fraction of a light-second that your figure of 22 miles amounts to. Now if you will multiply the number of seconds in a year by four and one-half, you will have the light-seconds which it takes to get anywheres near the nearest star. What then can the variations of temperature within 22 miles tell about outer space? A light year, inconceivable as it is to us, is a convenient unit used by astronomers. If you do venture out a few light-years into space, we strongly advise you to take plenty of wrappings. Presumably, outer space is almost a vacuum. Can you imagine a vacuum having temperature?—EDITOR.)

AN APPRECIATION OF THE NEW COVER DESIGN. "THE POOL OF DEATH ADMIRED

Editor, AMAZING STORIES:

First, just a word about the cover of the January issue of "our" magazine. It's great! I believe it is the biggest improvement you've made to date. Sigmond is good as the artist, but let's have one by Muller. If there is anybody that could draw a modernistic cover it would be he. As editor of a high school newspaper that is as modern as a Victorian highchair I certainly like to see such covers as yours.

I seem to have an unbounded craving for science-fiction movies.

I have been following with interest the "Smith-Robb Controversy." As far as I am concerned I like slang in the stories. I also believe that our future language will be based upon our modern slang. (Sound funny?) Just compare our present-day English with that of about 500 years ago. Undoubtedly much of it would have been termed slang then.

I have had time to read only one story in this issue: "The Pool of Death." If the rest of the stories are but one-half as good, then this issue has set a precedent.

There have been so many good stories printed lately in the magazine it is becoming impossible to say which is the best although "Tumithak of the Corridors" is the one I've remembered longest. I also remember that there should be a sequel.

Hoping that you continue your march of improvement—

Vernon H. Jones,
134 Franklin Ave.,
Des Moines, Iowa.

(We appreciate your remarks about the new cover. We will continue using this type of cover for a while before making any change in the artist and in this way we will get the opinion of our clientèle. "The Pool of Death," based on the life history of amoebas, has particular merit as it carries the mystery to the end and the story in its earlier parts gives the basis for the production of the giant creature that took two lives. We can only say about "Tumithak of the Corridors" that we hope to publish the sequel soon.—EDITOR.)

THE NEW COVER—MORE LIKE IT ASKED FOR. A FIRST LETTER FROM A CORRESPONDENT

Editor, AMAZING STORIES:

I have been a reader of your magazine for about five years now, this being my first letter to you. My reason for writing is this. I just purchased the January issue of AMAZING STORIES and I want to congratulate you on the cover of it. To me, it is the most striking cover I have seen on your magazine in the five years I have been reading it. It seems to me that it fits the magazine better than your other covers. The interior of your magazine is different than others and now you have a cover that fits the interior; it's different. I would like to see more covers like this. Your stories are all right although of course there are some that I don't care for. You can't please everybody.

Paul H. Mefferd,
3740 Maxwell Road,
Toledo, Ohio.

(You will undoubtedly see many more covers similar to the one on the January issue. We would like everyone to like all our stories, but we must recognize the fact that that is an impossibility.—EDITOR.)

RELATIVE MERIT OF RECENTLY PUBLISHED STORIES AND ILLUSTRATIONS

Editor, AMAZING STORIES:

Another science-fiction magazine I buy recently reduced in price to 15c and in content to 64 pages. I was relieved when AMAZING STORIES came out to see that it had not made a similar change. I don't mind reduction in price, but I do mind reduction in quantity. I would rather pay 25c for 96 pages than 15c for 64.

In our November issue of AMAZING STORIES I found the stories so close in quality that it was hard to place them in order of merit.

Here is my decision:

1. "The World of the Living Dead." Well told and interesting.
2. "Captain Brink of the Space Marines." I hope that this is the first of a long series of tales about Captain Brink.
3. "The Doom of Lun-Dhag"—another Larkin success.
4. "The Man Who Lived Twice." The strangest time-traveling story I've yet read.
5. "The Finger of the Past." Plenty of laughs in this one.

Morey's illustrations vary quite a bit in quality. I have made a list of his best illustrations below.

His best drawings were done for: "Dragons of Space" and "The Flying Threat" in Spring, 1930, Quarterly, "South Polar Beryllium Limited" in August, 1930, Monthly, "The Man Who Annexed the Moon" in February, 1931, "Atomic Fire" and "Too Many Boards" in the April, 1931, Monthly, "Extra Galactic Invaders" in Spring, 1931, Quarterly, "The Jameson Satellite" in July, 1931, Monthly, "Sky Cops" in December, 1931, Monthly, "The Planet of the Double Sun" in February, 1932, Monthly, "The Lemurian Documents in May, 1932, Monthly.

His best covers on following issues: February 1931, Spring 1931 Quarterly, March 1932, May 1932, July 1932.

If you will compare them with his other illustrations, I think you will agree with me that they are much the neatest looking and best done. If only all his illustrations could be as good. I wish he would pay more attention to the faces of the characters. Most of the time they do not look human.

Wesso's best illustrations were done for "Skylark Three" and other stories published at that time.

Jack Darrow,
4224 N. Sawyer Avenue,
Chicago, Ill.

(The desire of an Editor of a magazine is to please his readers and incidentally to give them good material. We have no idea of reducing the size of AMAZING STORIES. Our only wish is that we could make it still larger. The fate of our artists seems to be to receive all sorts of criticisms. Some readers like pictures which others object to. It is interesting to think of the possible changes for the better, but until the depression is over, it is hard to see our way clear to do anything in the way of expansion.—EDITOR.)

A NICE LETTER FROM A YOUNG READER OF AMAZING STORIES

Editor, AMAZING STORIES:

I have just finished reading the November issue of your wonderful magazine and want to comment on your excellent work. "The Doom of Lun-Dhag" sure was a whoopee. It kept me guessing all the time how it would turn out. Have a heart! Don't keep a fellow waiting so long! "The World of the Living Dead" is a peach of a serial though I hardly can believe anything can beat the "Metal Doom."

Three cheers for Harl Vincent! He certainly scored in "Faster Than Light." Keep up the good work Vincent and you'll knock 'em cold.

Here is a list of some other good stories I've tackled.

1. "The Lady of Light." 2. "Room for the Super-Race." 3. "The Super Man." 4. "Seeds of Life." 5. "Voice Across the Years." 6. "The Planet of the Double Sun." 7. "The Return of the Treipeds." 8. "The Sphere of Death." 9. All of the "Lemurian Documents." 10. "Spacehounds of I.P.C." 11. "The Burning Swamp." 12. "The Blattids"

These are just a fraction of the stories I have read.

If I should try to comment on all of your stories, you would go blind reading so much! But I can say that your stories as a whole are the best Science Fiction Stories ever born.

I am a boy of fourteen, and would enjoy corresponding with any "Science Fiction Bug."

Here's hoping you keep up the good work.

Robert Swem,
3000 Reisertown Road,
Baltimore, Maryland.

(We are confident that this very nice letter from one of our younger readers will lead to correspondence such as he desires. Such appreciation of our efforts, as you give, makes one feel that perhaps your remarks are in the line of flattery. We hope that we have really deserved such comments.—EDITOR.)

AN APPRECIATION OF THE AUTHOR OF "THE GREAT INVASION OF 1955" —J. DAVID REID

Editor, AMAZING STORIES:

I am a reader of your magazine and I see by the October number you have a new writer, J. David Reid. I sure enjoyed his story, but it was too short. I am interested in chemistry and there is lots of truth in "The Great Invasion of 1955."

I hope you will have Mr. Reid write a longer story next time. I was just enjoying it when it came to the end.

John Berrett,
529 West Sharp Avenue,
Spokane, Washington.

(The story you refer to is extremely interesting and also the fact that it is a chemical

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32x4	2.75	0.95	29x4.75	2.25	1.00
33x4	2.75	0.95	30x4.95	2.50	1.10
34x4	3.25	1.15	29x5.00	2.60	1.20
32x4½	2.95	1.25	30x5.00	2.60	1.20
33x4½	2.95	1.25	28x5.25	2.65	1.25
34x4½	2.95	1.25	30x5.25	2.75	1.25
30x5	3.25	1.45	31x5.25	2.95	1.25
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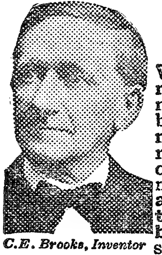

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story is attractive, as chemistry does not seem to lend itself very well to fiction. We hope to get more from this author because we are very glad to find chemistry taking a more prominent part in our columns. We shall certainly hope to hear again from Mr. Reid.—Editor.)

AN AMUSING LETTER HALF OF APPRECIATION — THE PRONUNCIATION OF SCIENTIFICTION

Editor, Amazing Stories:

I have been a reader of Amazing Stories for several years and have never yet written in my opinions or ideas. I therefore think that it is about time to start.

There is not much that I can say about the last issue, that is, the December Amazing mag. "The Serial" is one of the best within-the-earth stories that I have read, I am terribly sorry that the Lemurian stories are finished. They were certainly good while they lasted. The story by Dr. Keller made me think that the usually dependable writer of Scientifiction had gone crazy all of a sudden. He shows his usual ability to write novel stories but this story belongs more in the library of an insane asylum than in a dignified scientifiction mag. By the way, since I first read Amazing Stories I've been puzzling over the pronunciation of *scientifiction.* Maybe you could enlighten me. To get back to the mag, when I saw the word *ronsal* in "Roadways to Mars," I investigated and found that it was by the author of "Thia of the Drylands." The latter was a very good story but the former did not impress me as being what is known as "so hot." Maybe I'm the kind that like to find fault but regardless of that I think that the drawings on the covers are too sombre in color. The picture is very well drawn but poorly painted. I've found this to be true for the last 15 months. I have nothing but praise to offer for the general run of the stories and if you continue to increase the number of stories per issue at the same rate as you are now doing the mag will be colossal.

I have nothing more to say and perhaps it's just as well if I'm going to be as cheerful as that. So long until to-morrow as Lowell Thomas would say (or *is* it Lowell Thomas?)

Harold Kirshenblit,
928 New Lots Avenue,
Brooklyn, N. Y.

(If you will read the sub-title of Dr. Keller's story to which you object, you will see that we entirely disagree with your criticism. It has the true touch of some of Edgar A. Poe's tales, a strange bit of the grotesque runs through it. As regards the pronunciation of scientifiction the less time you devote to pronouncing it, the better it will be. It is not a true word and the correct idea can be expressed by the term science-fiction. We have radically changed the cover and you will find various expressions of opinion of readers about it in these columns. We presume that we may say that we are doing our best. The writer does not feel that doing one's best is enough; we must always try to do a little more.—Editor.)

AN UNUSUAL APPRAISAL OF THE WORK OF TWO DISTINGUISHED AUTHORS. BACK ISSUES ON HAND

Editor, Amazing Stories:

I have read your magazine since the July 1926 number and never missed a copy of either the Monthly, Quarterly, or the Annual issues.

I think the best story I have ever read in either of these magazines was "Moon of Doom" by Bell, in the first edition of the Quarterly.

You have some fine authors now and they certainly write some fine stories. I like Keller, Cloukey, Breuer, Verrill, Neil Jones, Taine and others too numerous to mention. I don't like Edmond H. Hamilton and Ray Cummings stories because they rehash the same old plot every time.

If any readers want back issues I have copies of both Monthly and Quarterly magazines, dating from 1928 until the present which I will dispose of.

Leslie Ray,
Kettle, W. Virginia.

(This letter speaks for itself and requires no comment. The fact that you have back issues that you can supply, will interest many of our readers.—Editor.)

THE NEW COVER. COMMENDATION OF A. HYATT VERRILL'S WORK

Editor, Amazing Stories:

This is my first letter to you although I have subscribed to A. S. for nearly two years and have read it regularly long before that. The January issue of "our" magazine is the "silence-breaker." It's a wow! First of all a change of covers that really makes the magazine distinctive and secondly a new serial by that writer of writers—A. Hyatt Verrill! Remember "The Green Splotches" by him? Fond memories! But this "Treasure of the Golden God" to my mind surpasses all his former efforts in breath-taking suspense and genuine skill in writing. Also Verrill knows what he is talking about, which makes it all the more interesting.

One heavy brickbat. Why make poor Morey carry all the artistic burden of our mag.? How about a couple of modernistic interior illustrations by Sigmund, Wesso or Paul?

Well, the oracle has spoken. Deep silence reigns.

Robert Tufts,
61 Rathbun Avenue,
White Plains, N. Y.

(This breezy letter expresses high approval of our new cover and we are glad to see that the writer of it welcomes Mr. Verrill, who has been absent for several months from our pages. We hope to have more of Mr. Verrill's stories in the future. The brick-bat is not a very heavy one, and there are distinctive reasons for having Mr. Morey do our work. He is doing better and better as the days go by—Editor.)

WE ARE GLAD TO GET SUCH LETTERS AS THIS AND ACCEDE TO YOUR REQUEST WITH PLEASURE

Editor, Amazing Stories:

As I have been a reader of Amazing Stories for over a year, I thought you might publish this letter for me.

I read three Science Fiction Magazines and I want to admit that yours tops them all. No, I have no brickbats to throw at any of your authors, or you, or at that artist of artists—Morey.

Now, to compliment you on the October issue. Boy, it was a honey from cover to cover—they were all excellent stories. I just finished "The Swordsman of Sarvon." Boy! it was all right. But the best complete story in my estimation was "The First Martian." It was the first story I have read by that author.

I would like to see a sequel to Williamson's "The Stone from the Green Star."

If any Denver readers would like to write to me, I will answer letters—all of them.

Well, Mr. Editor, will you put this letter in the "Discussions" Columns—from an ardent reader from Colorado.

Olon F. Wiggins,
916—28th Street,
Denver, Colorado.

(We certainly take pleasure in publishing your letter and we are very glad to see Mr. Morey receive a due meed of appreciation. "The Swordsman of Sarvon" is by a very young author and he certainly got plenty of brio into his work. We hope that this letter will bring you correspondents.—Editor.)

"THE MAN WHO LIVED TWICE" COMMENDED—A SEQUEL ASKED FOR

Editor, Amazing Stories:

"The Man Who Lived Twice" is the best story by far that you have ever had. My congratulations to William Kober for a fine piece of work. How about a sequel?

John Leon,
Rensselaer, New York.

A REQUEST FOR "MORE OF A. HYATT VERRILL." NOTES ON MISS ROBB AND DR. SMITH

Editor, Amazing Stories:

I have been reading the Amazing Stories for many years and this is my first attempt at the Discussions Columns. I have enjoyed every issue and hope to enjoy many more.

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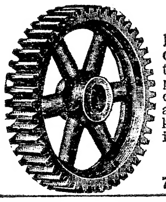

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Spring-Summer
Amazing Stories
Quarterly

Among the stories I liked best were, of course, "The Skylark of Space" and succeeding stories by Dr. Smith. The bombshells hurled between Miss Robb and Dr. Smith were interesting. What happened to A. Hyatt Verrill? He is the best author you ever had. Other stories such as "The Swordsman of Sarvon" will go far in making AMAZING STORIES.

I have about sixty issues of AMAZING STORIES which I will sell at cost price. I do not have them in complete order, but I will sell those I have. Let me know if anyone wants them.

Here's hoping for a long life for AMAZING STORIES and peace in the ranks of Miss Robb and Dr. Smith. Also more of A. Hyatt Verrill.

Robert Kidol,
Cream Ridge,
New Jersey.

(These few lines are quite interesting, touching upon the Miss Robb and Dr. Smith controversy and you will find your question about A. Hyatt Verrill now being answered, and we hope to have plenty of work from him in the near future. He is not the only author, whom, in the press of work, we feel that we have neglected so you will realize that you are going to be well taken care of in the future.—EDITOR.)

WHY DO INDIANS PAINT THEMSELVES? FINDING THE NORTH BY MOSS ON TREE TRUNKS IN THE TROPICS

Editor, AMAZING STORIES:

I have just finished reading the first installment of "The Treasure of the Golden God." It has prompted me to ask two questions regarding this story.

First, what benefit did the Indians derive from painting their bodies black?

Secondly, why does not the "old scheme" work in the tropics? By that I mean, why can't one tell the direction of North by observing the moss on the trees?

Will you please enlighten me on these two questions?

Donald Schol,
251 New York Avenue,
Newark, New Jersey.

(As far as benefits go in painting the body black, we may suppose that the Indians made themselves less conspicuous in the jungle. In the colder regions of the earth the growth of moss upon the trees is supposed to be affected by the cold winds, but in the tropics the conditions are so different that it is hardly to be expected that the points of the compass could be determined by moss on trees.—EDITOR.)

A LETTER ALMOST TOO COMPLIMENTARY EVEN IF IT DOES SPECIFY AN ERROR IN RADIO IN ONE OF OUR STORIES

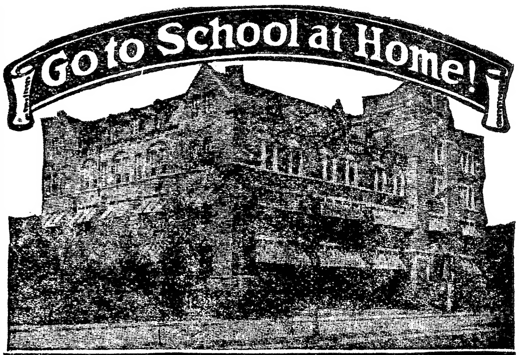
Editor, AMAZING STORIES:

In the current (December) issue I find the second and concluding installent of Ed. Earl Repp's well-written story, "The World of the Living Dead." As splendid an author as Mr. Repp appears to be, his description of the radio transmitting apparatus will cause a ripple of amusement among radio enthusiasts and experts. I seriously doubt if even the late Mr. Burbank could successfully cross spark and vacuum tube transmitters together to any conceivable advantage. And what breed of radio transmitter is equipped with a "spark plug"? However, we shall have to forgive Mr. Repp his single little technical error in view of the fact that he has given us another breath-taking tale of adventure.

The three representatives of the Soviet Internationale depicted in "No More To-morrows" by the inimitable Dr. Keller, and pictured by Morey, are masterpieces of horror. Three more repulsive individuals it would be difficult to imagine. Their written description causes the goose-flesh to rise mountainously, and the illustration—ugh! It's so ugly that I like it!

"Death by Radio" is weak, and considering the trend of present-day development highly improbable. Yet the improbable has in the last few years of progress so often come to pass that any adverse criticism based on improbability is hardly justifiable.

"The Shadow World," by Sophie Wenzel Ellis, is a delightful, gossamer thing, a vivid picture of a world at once beautiful and terrible; "The Call to Migrate" creates a situation



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that could hardly be any worse than the present one in wheat, and "The Vibration," by Edwin K. Sloat is a fine piece of scientific thinking and from the standpoint of physics anything but impossible. That "jovianite" would have to be powerful stuff, although there is no telling what it might do if aided by natural forces.

I take the greatest pleasure in reading your magazine: it is my pet belief that your pages are a source of inspiration to inventors, scientific workers, and all those interested in the scientific and intellectual progress of the world. I would welcome any correspondence from your readers; I delight in receiving the ideas of others, and in peaceful and harmless argument, especially if conducted at a safe distance.

Charles B. Bradford,
Rt. 4, Box 255,
San Jose, Calif.

(You are the second correspondent who has complained of Earl Repp's radio transmitting apparatus. Dr. Keller, in his story, "No More Tomorrows" certainly distinguished himself. In the sub-heading, we spoke of its having a touch of Edgar Allan Poe about it, which was certainly quite true and you put it very well in what you say. In the "Call to Migrate" the idea was to raise the price of wheat and they succeeded in doing it until the riot broke out, but the trouble was that the poor farmers did not get the benefit of the increased price per bushel as this was presumably, or supposed to be, reserved for the conspirators who very properly failed in their endeavors.—EDITOR.)

THE MECHANICAL EQUIVALENT OF HEAT AND THE PERIOD OF VIBRATION OF THE EARTH

Editor, AMAZING STORIES:

I have been buying the AMAZING STORIES Magazine at the news stands for about a year. It is one of the most interesting magazines I have ever read, which is saying a good deal.

Now for the brickbat. This is a serious matter in a magazine claiming to be devoted to science fiction. There are certain unalterable constants of nature, which are matters of observation regardless of the exact form of natural laws. Some of the chief among these are the well-known ratio, *pi* (3.1416 . . .), the mechanical equivalent of heat, the mass of a hydrogen nucleus at rest, etc.

The way in which authors ignore these constants in writing science fiction is enough to make Sir Isaac Newton, the founder of mathematical physics, turn over in his grave. I enjoy a good story about time travel, fantastic new inventions, interplanetary voyages, but I do not enjoy seeing the mechanical equivalent of heat or some other natural constant manhandled.

In particular do the authors sin against the mechanical equivalent of heat. The chief trouble seems to be that they do not realize the large value of this quantity, that it takes the same amount of energy to heat a pound of water through one degree F. as it does to raise a weight of 77.3 pounds one foot. By the time you have heated 100 pounds of water twenty degrees, you have expended the energy in a field artillery projectile at the instant of discharge, to say the least. This fact has a very important bearing on the almost totally miraculous (and physically unworkable) heat ray gun, which seems the favorite weapon of the science fiction writer. In order that the heat ray gun could barely kill a man, to say nothing of burning holes in the body and destroying his clothing, the weapon must be capable of developing the energy of a French 75 at the time of discharge. And yet one finds episodes in the stories where the characters use these or similar articles, of about the size and weight of a revolver or flash-light, to melt down brick walls and to cremate their enemies as they slaughter them. To accomplish these things represents an expenditure of energy that makes Big Bertha look like a popgun. And yet these wonder weapons never have to be reloaded, and they never get heated, never go bad and kill the user, in spite of the well known rule that the more intensely concentrated a source of energy is, the harder it is to control. Another thing, in order to kill instantly, the heat must be released in the interior of the body. The surface tissues can be burned to a crisp over a small area, and the victim recover. And electromagnetic radiation expends its heating effect where it is stopped and animal tissue is a poor conductor of heat.

One other thing, I should like to take up. That is the matter of the period of free vibration of the earth. In the December issue of AMAZING STORIES, the story, "The Vibration," by Edwin K. Sloat, has the period of vibration of the earth as exactly one hour. This is rather off the mark. Using a formula given by Harlow Shapely in Mount Wilson Contribution No. 92, I find the correct period of free vibration for the earth is 1 hr. 52 min. 50 sec. This is only another example of the lack of scientific knowledge some writers of science fiction show.

Noah W. McLeod,
Christine, N. D.

(You must not assume that the heat ray gun, which is of course an imaginary concoction, is subject to the laws affecting true projectiles. If they could transfer the intense heat over a distance, it does not follow that it is subject to the laws of recoil of ordinance. We are glad to get your correction of the figure of the earth's free vibration.—EDITOR.)

THE NEW COVER. MORE ABOUT A. HYATT VERRILL

Editor, AMAZING STORIES:

Sainted shades of our master Gainsborough! Here's our old flame all dolled up in a demure blue dress that brings out all her personality.

And here's A. Hyatt Verrill back. Well, British Guiana is familiar territory to him. So far he is behaving himself and doing his romanticizing in the fields about which we have no facts (and there are certainly plenty.)

My friend Lloyd Merryfield is going to have a lot of us fantasy fiends down on him for his remarks anent *Lady of Light.* That may be a fairy tale, but it's certainly at the peak of such creations. I don't think Merritt could have done much better. But don't misunderstand me. In my fantasy I want nothing which our major premises regard as impossible. True fantasy is outside them, using them as an endoskeleton, while ordinary science fiction is built up inside them, as if in an exoskeleton. The latter is in its very nature armored, and you know how we crabs tear into one which has a weak spot or hole in its carapace. But we know that the great bulk of the fantasy is mere protoplasmic padding, and admire or condemn it upon the basis of outward form or shape, and this is of course to a certain extent dependent upon the skill with which, first the frame is constructed, and secondly properly covered. If either is weak, or inadequate, or deformed, the fantasy suffers much more than would the body of an ordinary story, and is judged accordingly. So all hail to the conqueror of these difficult media, and their proper coordination.

It seems to me that John Michel is exceedingly short in his estimation of the length of time that slang has been developing. The whole history of language is mainly one of simplification, and of the substitution of less cumbersome words and phrases. Any term not generally accepted in literary and "polite" phraseology is slang whether its undesirableness is due to youth or age of the particular word involved. I prefer (and this is of course but *my* personal attitude) less "literary" conversations in my stories.

Clifton Amsbury,
Secretary, ISA,
1312 Q Street,
Lincoln, Nebraska.

(You stand up for the "Lady of Light" on the basis of being a fantasy fan. Undoubtedly a certain amount of almost pure fantasy comes into our columns and one of our most admired stories, "The Moon Pool" is definitely in great part fantasy, yet it was greatly admired and appreciated. We feel, seriously speaking, that such a story as the one you refer to lightens up our pages and prevents them from being too heavy. If we were to look over our early numbers, we could see various stories that would have been better if a little fantasy had been grafted on them. Referring to slang, the Latin poet Horace, writing about two thousand years ago, says that it is all a question of usage whether a new coined word shall be accepted into the language.—EDITOR.)

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Charles Atlas

Holder of the title: "The World's Most Perfectly Developed Man"—won in international contest against ALL strong men willing to compete with him.

Here's All You Do!

Just jot down your name and address on the coupon below, mail it to me—and I'll send you, absolutely free, a copy of my new book, *"Everlasting Health and Strength."* It reveals the secrets that changed me from a 97-pound, flat-chested weakling into a husky fellow who won the title of *"The World's Most Perfectly Developed Man"* against all comers! And it shows how I can build you into an *"Atlas Champion"* the same easy way.

I haven't any use for apparatus that may strain your heart and other vital organs; I don't dose you or doctor you. *Dynamic-Tension* is all I need. It's the natural, tested method for developing real men inside and out. It distributes added pounds of powerful muscles over your body, gets rid of ailments and surplus fat, and gives you the vitality, strength and pep that win you the admiration of every woman and the respect of any man.

Charles Atlas, As He Is Today

Gamble a Stamp---To Prove I Can Make YOU a New Man!

Gamble a stamp today by mailing the coupon for a free copy of my book, *"Everlasting Health and Strength."* It tells you all about my special *Dynamic-Tension* method, and what it has done to make big-muscled men out of run-down specimens. It shows you, from actual photos, how I have developed my pupils to the same perfectly balanced proportions of my own physique, by my own secret methods. What my system did for me, and these hundreds of others it can do for you too. Don't keep on being only 25 or 50 percent of the man you can be! Find out what I can do for you.

Where shall I send your copy of *"Everlasting Health and Strength?"* Jot your name and address down on the coupon, and mail it today. CHARLES ATLAS, Dept. 10-3 133 East 23rd Street, New York City.

Everlasting Health and Strength
Charles Atlas

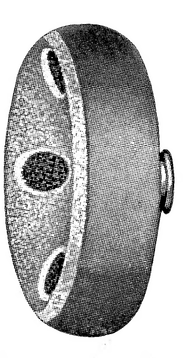
CHARLES ATLAS, Dept. 10-3
133 East 23rd Street, New York City.

I want the proof that your system of *Dynamic-Tension* will make a New Man of me—give me a healthy, husky body and big muscle development. Send me your free book, *"Everlasting Health and Strength."*

Name..................................
(Please print or write plainly)

Address..................................

City..........................State.........



Suction Cell Retainer is the newest invention for rupture. No bulk, no slipping. Holds and lets Nature heal.

BEWARE RUPTURE

THAT "DOESN'T BOTHER MUCH"

Light as a Feather

Yet...Holds Rupture!

An Ohio Scientist Is Now Helping Nature Rescue Thousands of Rupture Victims. No More Cruelty. No More Cumbersome Contraptions of ancient times. His new appliance works without embarrassing bulk, without leg straps or springs or bars or leather. You will be astonished at its tiny size, its revolutionary coolness and convenience. His test offer actually includes an extra appliance sent to you absolutely FREE. Mail coupon today for the most astounding rupture information you ever read. It is Free and will come in plain cover.

NOW rupture victims can abandon the needless pain and discomfort of torturous trusses. Science has at last developed a tiny, comfortable appliance of tremendous interest for every rupture sufferer. This device is called "Suction Cell Retainer." It has been developed and perfected as a result of having made more than a million rupture appliances. With it comes an astounding natural help for putting real strength into the abdomen, so as to aid Nature in preventing recurrence of rupture.

Results with Suction Cell Retainer are often so remarkable, so quick, so simple, that you too may marvel. It has no leg straps. It expands and contracts as easily as your own flesh. When you walk, run, bend, or exercise it tends to squeeze itself, not the part of your body it rests against. It is so entirely lacking in bulk and weight that even some ruptured men's wives have not known they were ruptured.

PERSONAL GUARANTEE

Suction Cell Retainer must give the results that you expect or you simply return it. If your rupture is not actually and positively reduced in size during the free trial we allow, send it back and demand the return of your deposit as agreed. If 30 days' trial are not enough, write us and we will extend the time to 60, 90 days or even four months if you desire.

Think what the above words promise, not only in new comfort and immediate relief, but also the possibility of ultimate FREEDOM! No system like this ever devised! At last, comes sensible relief. Pleasant. Solid comfort. Natural way. Reasonable in price. And you don't need to wait forever for results!

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Print address and be sure of reply